

Course Bulletin

102187	Human Physiology		
Subject:	CRBR	Catalog Nbr:	042A

102313	Exercise Physiology		
Subject:	CRBU	Catalog Nbr:	0731

102358	Prin Of Biochemistry		
Subject:	CRBU	Catalog Nbr:	0223

102979	Population Dynamics		
Subject:	CRBU	Catalog Nbr:	881H

122478	Physical Activity, Nutrition, and Health			
Subject:	NUTR	Catalog Nbr:	0272	
	2021 SPRG	Primary	Kieran Reid	Kieran.Reid@tufts.edu
	2022 SPRG	Primary	Jason Aziz	Jason.Aziz@tufts.edu
<p>Inadequate physical activity and a sedentary lifestyle are thought to be important causes of many of the major diseases of developed societies, including coronary artery disease, stroke, hypertension, diabetes, obesity, osteoporosis, and arthritis. There has been an explosion of information over the past two decades on the health benefits of exercise. In addition, exercise and nutrition are closely linked, with each modifying the effects of the other. Athletes, for example, may have markedly increased needs for some nutrients, but not others. Exercise has potent effects on the metabolism of protein, energy, fat, and some micronutrients. In addition, exercise is an important form of oxidative stress, and the ability of nutrients to alter the effect of exercise is not well understood. Exercise and nutrition together offer an extremely powerful intervention for a variety of problems, including the frailty of aging, the wasting of AIDS, and the obesity that underlies most cases of diabetes and atherosclerosis. This course is designed to give students an understanding of the fundamental interactions between exercise and nutrition, and to offer students an opportunity to examine the application of nutrition to exercise and vice versa. Each lecture will also discuss how these factors are important in disease prevention, and where applicable, treatment. Undergraduate biology or physiology is recommended. Prerequisites: NUTR 202 or NUTR 245 and NUTR 0246 or equivalent is required and undergraduate-level physiology is recommended, unless exemption approved by instructor, and graduate</p>				

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standing or instructor consent.

122782	Globalization, Development And Humanitarianism: Ethics And Personal Transformation
Subject: NUTR	Catalog Nbr: 0279
<p>(Cross-listed as DHP D238 (Fletcher School). This course challenges students to reflect on the moral and ethical ideas underpinning today's changing global interests and power. As we witness humanitarian crises and failed development efforts, we will consider ethical and moral values that support humanitarian and developmental interventions. We will consider the ethical implications that are inherent in the choice between justice and mercy, freedom and order and truth and loyalty. Students will analyze the moral and ethical underpinnings of ideas that promote new approaches to development and humanitarian action with a personal, academic and institutional perspective. Even as the world is coming closer together in the information age, divisions on the lines of regional, ethnic and religious identities continue to grow more pronounced and stark. This course will encourage students to articulate their personal beliefs and ethical values. As students move to become policy makers and stakeholders it is essential that they are grounded in an understanding of their own moral framework and also appreciate the differences that exist in their midst. Students will explore ideas of minimalist ethics, just wars, realists and liberal arguments around humanitarian and developmental intervention.</p>	

128471	Foundations of Nutrition Science
Subject: NUTC	Catalog Nbr: 0200
2021 FALL	Primary Diane McKay diane.mckay@tufts.edu
<p>This course provides an understanding of basic nutrition science, including the principles of diet planning and government standards; the biological functions of the macro- and micronutrients; energy balance, weight control, and physical activity; and the role of nutrition in chronic diseases, nutrition throughout the life cycle, and contemporary nutrition-related issues. Prerequisite: Graduate standing or instructor consent.</p>	

128489	Malnutrition Prevention and Response
Subject: NUTC	Catalog Nbr: 0203
2021 FALL	Primary Erin Boyd Erin.Boyd@tufts.edu
<p>The course will analyze different nutrition specific interventions and how to combine them in order to address malnutrition in all its forms. Emphasis will be on successful program design and delivery. The themes of interventions reviewed in this course includes: Infant and Young Child Nutrition (IYCN); prevention and treatment of acute malnutrition, prevention of obesity, and micronutrient deficiency control. By the end of this course, students will be familiar with a wide range of nutrition interventions and how to combine them to address both underweight and overweight in international programs. Pre-requisite: Graduate standing or instructor consent.</p>	

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128508	Nutrition-Related Consumer Marketing			
Subject: NUTC	Catalog Nbr: 0205			
2022 SUMR	Primary	Rachel Cheatham	Rachel.Cheatham@tufts.edu	
<p>Understanding the dynamic interplay between nutrition and marketing from both the consumer and marketer perspective is key to determining how to successfully market foods and beverages aligned with today's wellness-focused consumer. In this course, students will examine the historical effectiveness of efforts by food companies, health advocacy organizations, and governments aimed at improving nutritional habits. Students will develop real-world skills used by marketing professionals which integrate an understanding of eating psychology, food purchasing decision-making behaviors and prevailing dietary guidance with marketing tactics including message development, influencer mapping and social media. By the end of the course, students will be able to leverage the power of food marketing to promote positive nutrition.</p>				

128532	Program Monitoring & Evaluation			
Subject: NUTC	Catalog Nbr: 0210			
2022 SUMR	Primary	Marion Min-Barron	Marion.Min-Barron@tufts.edu	
2022 SUMR	Primary	Natalie Valpiani	Natalie.Valpiani@tufts.edu	
<p>This course provides an introduction to the principles and practices of program monitoring and evaluation, as applied to food security and nutrition-related programs in developing countries. The course content will be imparted through online lectures, case studies, interactive discussion, and assignments that prompt students to grapple with monitoring and evaluation challenges facing ongoing global efforts to combat malnutrition and food insecurity. By the end of the semester, course participants will: be familiar with the strategies and techniques for monitoring and evaluating projects, particularly those related to nutrition and food security; be able to assess the adequacy of monitoring and evaluation proposals and program evaluations designed by others; be exposed to multiple domestic and international examples of monitoring and evaluation systems, both large and small; and gain experience in the design of monitoring and evaluation plans for real programs.</p>				

128568	Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions			
Subject: NUTC	Catalog Nbr: 0211			
2022 SPRG	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu	
<p>For many Americans, actual health behaviors fall short of evidence-based recommendations and guidelines. Why do people do what they do—or don't do? How can we design programs that tap into these factors to support healthier behaviors? This course explores theories of behavior change commonly used in nutrition and public health. Specific theories addressed include the Health Belief Model, the Theory of Planned Behavior, Social Learning Theory, Diffusion of Innovations, Behavioral Economics, and the Socio-Ecological framework. The course emphasizes the application of core theory concepts to the design and evaluation of program interventions.</p>				

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128591	Social Media For Nutrition Audiences	
	Subject: NUTC	Catalog Nbr: 0220

128622	Pd Theories Methods Proc	
	Subject: NUTC	Catalog Nbr: 0318

128667	Theories Of Pd	
	Subject: NUTC	Catalog Nbr: 0319

128687	Positive Deviance In Practice	
	Subject: NUTC	Catalog Nbr: 0320

128785	Directed Study/undergrad	
	Subject: NUTR	Catalog Nbr: 0102

129095	Special Tps:study Abroad Nutrition	
	Subject: NUTR	Catalog Nbr: 0196

129117	Special Tps:study Abroad Nutrition	
	Subject: NUTR	Catalog Nbr: 0197

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129335	Principles of Nutrition Science			
Subject: NUTR	Catalog Nbr: 0202			
2022 FALL	Primary	Diane McKay	diane.mckay@tufts.edu	
<p>This course presents the fundamental scientific principles of human nutrition. Students will become familiar with food sources; recommended intake levels; biochemical role; mode of absorption, transport, excretion; deficiency/toxicity symptoms, and potential major public health problems for each macro- and micronutrient. The student goals for this course are: 1) to describe the components of a healthy diet, 2) understand the major nutrition problems that affect individuals and populations from conception and throughout the life cycle, and 3) understand the scientific basis for nutritional recommendations brought before the scientific and lay communities. Prerequisites: Students are required to have taken a one semester college-level course in either human biology, chemistry, or physiology (preferred).</p>				

129416	Fundamentals of Nutrition Policy & Programming: How Science & Practice Interact			
Subject: NUTR	Catalog Nbr: 0203			
2022 FALL	Primary	Patrick Webb	patrick.webb@tufts.edu	
2022 FALL	Primary	Eileen Kennedy	Eileen.Kennedy@tufts.edu	
<p>NUTR 203 is a course that will allow students at the Friedman School to become familiar with policy processes (domestic and international), typologies of policy initiatives (laws, regulations, program interventions, legal restrictions and systems, institutional mandates), and to be able to critically analyze and discuss how policy and science interact with regard to food and nutrition. The class will cover: a) how science influences the policy agenda, and how policy debates influence the scientific agenda; b) the scientific underpinnings of food and nutrition policies; c) how empirical findings in scientific research and operational programming make their way into policy and law; d) debates and controversies in US and international nutrition; e) the range of options for intervention that exist (to improve nutrition), and those that are used; f) how do we know what works best and what the alternatives might be?; g) approaches to problem assessment and measurement; h) success stories in the nutrition pantheon; i) constraints to success (what makes or breaks major program successes), and j) key institutions and organizations involved in nutrition policy and programming in the US and around the world. Prerequisites: Graduate standing or instructor consent.</p>				

129475	Principles of Epidemiology			
Subject: NUTR	Catalog Nbr: 0204			
2022 FALL	Primary	Silvina Choumenkovitch	silvina.choumenkovitch@tufts.edu	
2022 FALL	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu	
2022 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu	
<p>This course covers basic epidemiologic methods and concepts, including study design, calculation and interpretation of measures of disease frequency and measures of effect, sources of inaccuracy in experimental and observational studies, causal inference, and an introduction to the statistical evaluation and interpretation of epidemiological data. Students will discuss historical examples and recent studies in order to apply their understanding of abstract concepts and specific quantitative methods to the interpretation and</p>				

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critique of published work. Prerequisite: Graduate standing or instructor consent.

129491	Communicating Health Information to Diverse Audiences, Part A			
Subject:	Catalog Nbr:			
NUTR	0205			
<p>Nutrition communicators are often called upon to reach a variety of audiences, from consumers and patients to low-literacy individuals, other health and nutrition professionals, funders, and more. This course will help students tailor communications for these diverse audiences across a range of media. Prerequisite: Prerequisite: NUTR 0220 and graduate standing or instructor consent; the prerequisite (NUTR 0220) may not be taken concurrently with NUTR 0205. Enrollment limited to 15 students. Enrollment priority is given to Nutrition Interventions, Communication, and Behavior Change degree program studentss</p>				

129583	Statistical Methods for Nutrition Science and Policy			
Subject:	Catalog Nbr:			
NUTR	0207			
2022 FALL	Primary	Sean Cash	Sean.Cash@tufts.edu	
<p>Part one of a one-year, two-semester course covering descriptive statistics, graphical displays, confidence intervals, hypothesis testing, t test, chi-square test, nonparametric tests, multiple linear regression, multiple logistic regression, experimental design, multi-factor and multiple comparisons procedures. Students will learn how to use Stata statistical analysis software. Prerequisite: Graduate standing or instructor consent.</p>				

129603	Human Physiology			
Subject:	Catalog Nbr:			
NUTR	0208			
2022 SPRG	Primary	Paul Leavis	paul.leavis@tufts.edu	
<p>This course meets the physiology requirement for students in the following programs: Human Nutrition, Nutritional Epidemiology, Cell and Molecular Nutrition. This course will cover the functions of mammalian organisms as we understand them at various levels of organization - organ system, organ, cellular and subcellular levels. Our goal is to provide a working knowledge of the fundamental properties and regulation of these systems so that the student can understand and relate this material to that learned in other basic science courses with particular emphasis on those related to nutrition. Prerequisites: Undergraduate level introductory biology and chemistry and graduate standing or instructor consent.</p>				

129664	Statistical Methods for Nutrition Research (science)			
Subject:	Catalog Nbr:			
NUTR	0209			
<p>The first of a two course sequence covering study design, descriptive statistics, graphical displays, confidence intervals, hypothesis testing, Student's t test, chi-square test, nonparametric tests, sample size calculations, multiple linear regression, multiple logistic regression, multi-factor experimental design, repeated measures, and multiple comparisons procedures. NUTR 209 generally covers topics through the start of linear regression.</p>				

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Students will make extensive use of SAS for Windows. NOTE: Students cannot receive credit for both NUTR 209: Statistical Methods in Nutrition Research (Science) and its second semester counterpart NUTR 207: Regression Analysis for Nutrition Research (Policy). This course was formerly listed as NUTR 209A-01.

129679	Survey Research in Nutrition			
Subject: NUTR	Catalog Nbr: 0210			
2022 SPRG	Primary	Beatrice Rogers	beatrice.rogers@tufts.edu	
<p>This is a methods course focusing on field research in nutrition. Students will learn to identify policy-relevant issues, define hypotheses, and select and combine appropriate methods drawn from nutrition, epidemiology, anthropology, economics, psychology, sociology, education and political science. Students will also learn how to develop research designs, sampling and analysis plans, as well as how to construct and pretest the types of instruments commonly used in nutrition and food policy research and evaluation. The course will cover ethical issues in human subjects research and compliance with IRB requirements, interviewer training, quality control, site operations, and logistics. Prerequisites: NUTR 207 or equivalent, and graduate standing or instructor consent.</p>				

129766	Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions			
Subject: NUTR	Catalog Nbr: 0211			
2022 FALL	Primary	Sara Folta	sara.folta@tufts.edu	
<p>What motivates people to adopt healthier food and lifestyle choices? This course will explore various theoretical perspectives on nutrition and health-related behavior change. It will include an examination of several individual-based, social-based, organization-based and eco-social theories, including the Health Belief Model, the Theory of Planned Behavior, the Transtheoretical Model, Decision-Making, Social Support, Social Learning Theory, and Diffusion of Innovations. Knowledge of these theories will help inform the design of research and program interventions based on psycho-biological, social, cultural and organizational frameworks. The course emphasizes an understanding of core theory concepts and issues in measurement. In-class workshops will allow for direct application of the theories to students' current research and program intervention interests. The course will provide concepts and tools that can apply not only to the students' own research interests, but also to other courses, such as those focused on nutrition interventions, patient education, persuasive communication, social marketing and mass media. This course should be of great value to MS students in the Nutrition Communication, Nutrition Epidemiology, Nutrition Intervention Programs and to students in the MS/Dietetic Internship programs. Priority enrollment is given to: 1) NICBC students (for whom the course is a requirement); 2) Second-year FANPP students, Nutrition Interventions specialization; 3) Second-year Friedman students in any program doing a Nutrition Communication minor; 4) First-year FANPP students, Nutrition Interventions specialization; 5) First-year Friedman students in any program doing a Nutrition Communication minor; 6) Any other Friedman students; 7) MPH students; 8) Any other Tufts students (Graduate standing or instructor consent); 9) Any other students from Boston Consortium Schools.</p>				

129922	Statistical Methods for Health Care Professionals			
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Subject: Catalog Nbr:
NUTR 0214

In this course students critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals that are influencing nutrition science, research, policy, and clinical practice. Students will also develop an intermediate level ability to analyze research data with Stata statistical software. Prerequisites: Undergraduate level statistics or college level math course and graduate standing or instructor consent..

129943 **Fundamentals of U.S. Agriculture**

Subject: Catalog Nbr:
NUTR 0215

2020 Fall	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
2022 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu

This course covers the major social, political, and economic aspects of the U.S. agricultural system, both as it exists today as well as its historical development. After consideration of agricultural systems in general, we explore some of the key historical forces that have made U.S. agriculture what it is today and the major role of the federal government, both past and present. This includes an explicit focus on policy, power, and the role that systems of oppression (e.g., slavery and racism, genocide of Indigenous peoples) have played and continue to play in determining who farms, who labors, and who has access to agricultural resources. The final portion of the course focuses on the people who grow and harvest our food, the communities in which they live and work, and the development of alternative food systems (i.e., local and regional) as potential mechanisms to transform relationships between agriculture and society. Prerequisite: Graduate standing or instructor consent.

129998 **Management, Planning, and Control of Nutrition and Health Programs and Organizations**

Subject: Catalog Nbr:
NUTR 0216

2021 SPRG	Primary	David Hastings	david.hastings@tufts.edu
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Key management concepts and principles for managing nutrition and health programs and organizations will be addressed to equip students to function as program directors and project managers). Case studies and readings will be used to convey a practical understanding of how to manage and coordinate business functions to achieve the goals and objectives of the organization. This course will deal with for-profit and nonprofit organizations. Topics will include business and project planning, management control systems, financial management, budgeting, performance measurement, pricing and marketing of services, operations, management, cost analysis, human resource management, and the development of management information systems. The course is designed to provide practical tools in areas we believe students need to acquire skills. Prerequisite: Graduate standing or instructor consent.

130033 **Monitoring and Evaluation of Nutrition and Food Security Projects**

Subject: Catalog Nbr:
NUTR 0217

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2022 SPRG	Primary	Jennifer Coates	jennifer.coates@tufts.edu
<p>This seminar will provide an introduction to the principles and practice of program monitoring and evaluation, with an emphasis on food security and nutrition-related programs in developing countries. By reviewing relevant literature and utilizing case studies in the areas of nutrition, food security, primary health, agriculture and other fields, students will become fluent in applying the language and tools of program monitoring and evaluation system design and implementation. This seminar will consist of lectures, discussions, guest speakers, and applied exercises including work on practical monitoring and evaluation challenges for ongoing development programs. Enrollment limited to 22 students with the following priority order: 1) MAHA students; 2) FPAN students pursuing the Nutrition Interventions Specialization; 3) Graduating and Second-Year students; 4) PhD students; 5) First-Year students; 6) MS/MPH and dual-degree students that don't fall into any of the preceding categories; and 7) Cross-Registrants. Prerequisite: Graduate standing or instructor consent.</p>			

130080	Communications Strategies in Nutrition and Health Promotion Nutrition		
Subject: NUTR	Catalog Nbr: 0218	2022 SPRG	Primary
		Daniel Hatfield	Daniel.Hatfield@tufts.edu
<p>A survey of communications strategies in health promotion. This course will provide students with the ability to decide when a health communication initiative is appropriate; to develop health communications programs based on appropriate theoretical foundations; and to select and plan evaluation strategies appropriate for the particular intervention. Enrollment priority for NICBC students. Enrollment limited to 20 students. Prerequisite: NUTR 0211: Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions or NUTB 0211: Theories of Behavior Change and graduate standing or instructor consent.</p>			

130123	Fundamentals of Food Science		
Subject: NUTR	Catalog Nbr: 0219		
<p>This course will provide students a broad overview of certain aspects of both the U.S. and worldwide food supply. This course is intended to provide students with an understanding of : 1) the basic groups of foods in the food supply and their nutrient profiles; 2) the effects of harvesting, processing and storage; and 3) the important issues affecting food safety. Requirement for all students in the Food Policy and Applied Nutrition (FPAN), Agriculture, Food, and Environment (AFE), and Nutrition Communication programs who entered before the Fall of 2006. (0.5 credits)</p>			

130290	The Global Food Business		
Subject: NUTR	Catalog Nbr: 0221		
<p>The purpose of this course is to introduce the student to the field of international food and agribusiness. Today, international trade in agricultural commodities and foods is a major segment of the world's business. This business continues to grow yearly, motivated by new and potential international trade agreements (GATT, NAFTA), expansion by both established and new multinational companies, and export policies by countries seeking new markets for their growing food and agricultural production. The focus of this course will be to develop in each student a conceptual knowledge of the analytical skills in administration, marketing,</p>			

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business strategy, research, governmental policies and technology that international food business requires today. The course also attempts to analyze the global food business from a transnational perspective, rather than any single nationalistic viewpoint of food and agribusiness. It is designed to meet the requirements of students aiming to enter the international food business world, as well as for students who in their professional careers (e.g., government, legal) will deal with this important sector of international business. This course was formerly listed as NUTR 245. This course is cross-listed with The Fletcher School (B280). Prerequisite: Graduate standing or instructor consent.

130334	Gender, Culture and Conflict in Complex Humanitarian Emergencies				
Subject:	Catalog Nbr:				
NUTR	0222				
2021 FALL	Primary	Elizabeth Stites	elizabeth.stites@tufts.edu		
2021 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu		
<p>This course examines situations of armed conflict, civilian experiences of these crises, and the international and national humanitarian and military responses to these situations from a gender perspective and highlights the policy and program implications that this perspective presents. Topics covered include gender analyses of current trends in armed conflict and terrorism, and of the links among war economies, globalization and armed conflict; the manipulation of gender roles to fuel war and violence; gender and livelihoods in the context of crises; masculinities in conflict; sexual and gender-based violations; women's rights in international humanitarian and human rights law during armed conflict; peacekeeping operations; peacebuilding; and reconstruction. Case studies are drawn from recent and current armed conflicts worldwide. This course is cross-listed with The Fletcher School (D232). Prerequisite: Graduate standing or instructor consent.</p>					

130388	Seminar In Humanitarian Issues				
Subject:	Catalog Nbr:				
NUTR	0223				
2021 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu		
<p>This course is open for three semester hour units to Master of Arts in Humanitarian Assistance (MAHA) students for whom it is a required Core course.</p> <p>This course is also open to non-MAHA students via Cross-Registration in SIS for 1.5 semester hour units. The course is segmented into three parts.</p> <p>Non-MAHA students are not required to complete the Capstone Project.</p> <p>Part 1 and Part 2 is for non-MAHA students, as well as MAHA students and Part 3 is for MAHA students only.</p> <p>PART 1: This segment of the course will ensure that students have the necessary skill sets to adapt rapidly to the U.S. higher education system. Non-U.S. students that are not accustomed to the U.S. University systems, as well as mid-career students that have not been in school recently would be exposed to the following requisite skills:</p> <p>a) Library skills and source citations skills;</p>					

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- b) Literature review skills;
- c) Time management and self-care in academia;
- d) Formulating research questions;
- e) Reading and writing skills and resources for help;
- f) Public presentation skills (oral and visual)

PART 2: This segment of the course is for non-MAHA students, as well as MAHA students and will expose students to contemporary humanitarian research through research seminars with the Feinsein International Center's (<http://fic.tufts.edu/>) faculty and staff.

Part 3 for MAHA students (only): The seminar emphasizes academic and research skills that are important for a professional in the humanitarian field. It also offers MAHA students the chance to explore in greater depth key issues in humanitarian assistance. The seminar is also an opportunity to discuss in depth much of the theory and academic literature of other prerequisite courses. The main output is the MAHA capstone project, which is a requirement for graduation. Activities are concentrated in the fall semester, but the seminar also meets occasionally in the spring. Capstone projects are due in the spring semester.

Pre-requisite: Graduate standing or instructor consent.

130448	Community Food Planning And Programs		
Subject:	Catalog Nbr:		
NUTR	0224		
<p>Key features of the course include field trips to community / local food and farm programs, guest presenters, and field-based planning projects with area non-profits, public sector agencies, or businesses. This course will cover (domestic) food and agriculture programs that focus on or operate at the community or regional levels. Such initiatives promote local/regional agriculture and food chain businesses that process, market, and use local or regional food products. In tandem, public sector and NGO initiatives now sponsor programs and policies with a community or urban food system agenda. The focus will be on more complex initiatives such as farm-to-institution projects, regional wholesaling initiatives, and food policy councils. A major course objective is to provide practical skills and tools for design, strategic planning, and implementation of these programs, including assessments, research, policy components, and funding. We will also provide contextual analyses and critical perspectives of community-based strategies as alternative food systems models.</p>			

130500	Introduction to Modern Biology Techniques		
Subject:	Catalog Nbr:		
NUTR	0225		
2022 FALL	Primary	Martin Obin	martin.obin@tufts.edu
<p>This intensive 1.5 semester hour unit 14-week course will familiarize you with research techniques employed in nutrition science research at the molecular, cell, tissue, whole organism and population levels. An understanding of these techniques and their application is essential for reading the nutrition science literature, developing skills as a researcher and appreciating the goals, current limitations and future potential of modern nutrition science research. Eight (at times overlapping) classifications of techniques and</p>			

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experimental approaches will be presented over 14 weeks:

1. Partitioning techniques for biomolecule separation, and downstream analysis by Mass Spectrometry; 2. Physical separation of cell and tissue constituents; 3. Analysis of cell constituents and biomolecules using antibody-based techniques in conjunction with... 4) Fluorescence, Bioluminescence and Imaging techniques; 5. Gene Expression: Analysis and Manipulation; 6. 'Omics' and Systems Biology; 7. Data Science (Informatics, Computational Biology, 'Virtual' Communities/Consortia); 8. Bioengineering and Synthetic Biology. For each technique we will emphasize the underlying principles/theory, work-flow and data output. An understanding of the strengths, limitations and combinatorial implementation of these techniques will facilitate your development as an experimentalist and scholar. An additional goal of this course is to familiarize you with the "virtual" (i.e., online) communities of scientists and the vast resources available to you in public domain websites managed by scientific and information consortia. This is a required course for all Biochemical and Molecular Nutrition (BMN) degree program students. The grading basis for this course is Satisfactory/Unsatisfactory. Prerequisite: Graduate standing or instructor consent.

130524	Food from Production to the Marketplace			
Subject:	Catalog Nbr:			
NUTR	0226			
2022 FALL	Primary	Richard Black		Richard.Black@tufts.edu
<p>The intent of this course is to develop an understanding of the factors that shape the selling of food in the United States. Drawing from business, psychology, economics, and law, we will explore the methods and efforts to sell food. This not a marketing course as seen in business schools; rather, we explore the market context of food from multiple lenses to understand how this context influences food choice. We will consider how government shapes the efforts of the private sector to connect with consumers. We will use case studies and projects with firms to ground our learning in the actual experiences of firms, government actors, and non-governmental organizations. We will also use reflective essays based on peer-reviewed literature to assess critically presentations from representatives of the involved sectors. Our assessment of the food system will benefit from speakers from industry, non-profits, and the government. Pre-requisite: Graduate standing or instructor consent.</p>				

130571	International Nutrition Programs			
Subject:	Catalog Nbr:			
NUTR	0227			
2022 FALL	Primary	Erin Boyd		Erin.Boyd@tufts.edu
<p>This course provides presentations, readings, and exercises relating to the broad range of nutrition interventions utilized in international programs: infant and young child nutrition, micronutrient prevention and control activities, prevention and treatment of acute malnutrition, cash and food-based programs, and water, sanitation and hygiene activities. The course also covers malnutrition causality, nutrition architecture, and an overview of global nutrition platforms. Students become well versed in program design through a multi-causal lens in Asia, Africa, South American. Pre-requisite: Graduate standing or instructor consent.</p>				

130618	Community and Public Health Nutrition			
Subject:	Catalog Nbr:			

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NUTR	0228			
2022 FALL	Primary	Virginia Chomitz	Virginia.Chomitz@tufts.edu	
<p>This intensive course provides presentations, readings and activities related to the broad range of community-based nutrition research, programs and policies in the U.S. today. Public health efforts in communities are implemented in many different types of settings, including community non-profit agencies, worksites, health centers, clinics, hospitals, schools, churches, supermarkets, recreational and sports centers, councils on aging/senior centers, and emergency feeding sites. Students will become familiar with community-based research and programs focused solely on nutrition as well as those in which nutrition is one component. Students will engage in skill-building and participatory activities, as well be introduced to case examples of creative and innovative approaches to community nutrition. Through field visits and guest speakers, students will have an opportunity to dialogue with public health experts and practitioners who can influence community nutrition practice. Upon completion of this course, the students will have a toolbox of skills to utilize and apply in a wide range of practice settings. Prerequisites: Graduate standing or instructor consent.</p>				

130716	Humanitarian Action in Complex Emergencies			
Subject:	Catalog Nbr:			
NUTR	0229			
2022 FALL	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu	
<p>The intent of the class is to introduce students to a broad range of research and writing that constitutes our knowledge on humanitarian action in complex emergencies, and to give the student the skills to read research and keep abreast of a rapidly evolving field. There is a strong emphasis on the practical application of this knowledge. The course simultaneously treats humanitarian action as a phenomenon to be understood and as a practice that urgently needs to be improved. This multi-disciplinary course will cover a broad range of subjects, and has a number of objectives. By the end of the course, students will be able to: Outline historical perspectives on humanitarian action; Describe and define the application of international humanitarian law, principles, and codes of conduct to humanitarian action in complex emergencies, and outline major debates surrounding these frameworks; Utilize the main analytical frameworks for addressing the protection of life, livelihoods, rights and safety of people caught in complex emergencies; Critically and quickly read, interpret and apply research on humanitarian action; Analyze the political economy of conflict and humanitarian assistance; Discuss the ethical and practical implications of incorporating human rights in humanitarian action; Utilize methodologies for improving the quality, effectiveness and accountability of humanitarian action; and Describe the evolving nature of conflict, crisis, and the architecture of the humanitarian system. This course is cross-listed with the The Fletcher School (DHP D230). Prerequisites: Graduate standing or instructor consent.</p>				

130855	International Ngo's: Ethics And Management Practice			
Subject:	Catalog Nbr:			
NUTR	0230			
<p>The course first examines the role and relevance of the non-governmental sector with a view to understanding the concepts underpinning NGO management, accountability and role in society. The course will then focus on a number of key issues essential for the effective running of NGOs. The course will end with an exploration of Southern NGOs and their relationship with the North and the future of international NGOs. This course will introduce students to such essential</p>				

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skills such as strategic planning, advocacy, the use of the press, fundraising, budgets and reading financial statements. It will also explore key questions including the role NGOs play in society and in international development and how and whether they are different from other institutions in society. This course focuses on key conceptual questions that are essential to understanding NGOs and on practical skills and tools needed for managing them. The course first examines the role and relevance of the non-governmental sector with a view to understanding the concepts underpinning NGO management, accountability and role in society. The course will then focus on a number of key issues essential for the effective running of NGOs. The course will end with an exploration of Southern NGOs and their relationship with the North and the future of international NGOs. This course will introduce students to such essential skills such as strategic planning, advocacy, the use of the press, fundraising, budgets and reading financial statements. It will also explore key questions including the role NGOs play in society and in international development and how and whether they are different from other institutions in society. This course focuses on key conceptual questions that are essential to understanding NGOs and on practical skills and tools needed for managing them.

130915	Fundamentals of GIS			
	Subject:	Catalog Nbr:		
	NUTR	0231		
	2022 FALL	Primary	Alexandra Thorn	Alexandra.Thorn@tufts.edu
<p>Many problems in agriculture, food and nutrition are inherently geographic in nature. For example, livestock production is increasingly concentrated in large feeding operations, leading to new spatial patterns of water and air pollution or foodborne illness. Spatial clustering is equally important for food consumption, nutrition and public health, as in hunger hotspots, food deserts and disease corridors. This course will equip students with the skills needed to capture, analyze and communicate spatial data in geographic information systems (GIS), using a variety of examples from agriculture, food and nutrition. Pre-requisite: Graduate standing or instructor consent.</p>				

130952	Nutrition Epidemiology Journal Club			
	Subject:	Catalog Nbr:		
	NUTR	0232		
<p>The principal goals of the nutrition epidemiology journal club are 1) to enhance graduate students' understanding of the field of nutrition epidemiology and 2) to provide practice reviewing and critiquing research studies. In weekly sessions, the students will prepare a peer-reviewed or original article for class discussion that reinforces the principles of study design as they apply to nutritional epidemiology. This course will also help students to develop their peer review skills and thus become critical reviewers of epidemiologic literature.</p>				

131013	Agricultural Science and Policy I			
	Subject:	Catalog Nbr:		
	NUTR	0233		
	2022 SPRG	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu
<p>First part of a two-semester sequence required of AFE students. This course covers the major biological, chemical and physical components of agricultural systems. Each is discussed from the viewpoints of both the</p>				

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underlying natural processes and principles, and their significance for major agricultural, food safety, and environmental policy issues in the U.S. today. In the first semester, the topics covered are soils, water, nutrients, and genetic resources. Prerequisite: NUTR 0215: Fundamentals of U.S. Agriculture, and graduate standing or instructor consent.

131043	Junior Clinical Rotations			
Subject:	Catalog Nbr:			
NUTR	0235			
2022 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
Required of junior standing students enrolled in the Combined Dietetic Internship/Masters Degree program. Grading is Satisfactory/Unsatisfactory.				

131317	Practicum in Bioresearch Techniques			
Subject:	Catalog Nbr:			
NUTR	0236			
2020 Fall	Primary	Jose Ordovas	jose.ordovas@tufts.edu	
2021 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu	
2021 SPRG	Primary	Nirupa Matthan	nirupa.matthan@tufts.edu	
2021 SPRG	Primary	Jiantao Ma	Jiantao.Ma@tufts.edu	
2021 SPRG	Primary	Sheldon Rowan	Sheldon.Rowan@tufts.edu	
2021 SPRG	Primary	Barbara Shukitt-Hale	Barbara.Hale@tufts.edu	
2022 FALL	Primary	Xiang-Dong Wang	xiang-dong.wang@tufts.edu	
<p>Biochemical and Molecular Nutrition students must enroll in one practicum in bioresearch techniques. Students who anticipate a career in basic nutritional sciences require extensive laboratory training. Practicums in bioresearch techniques, established as a single, 3.0 semester hour unit course, will provide students with an understanding of critical experimental evaluation as well as hands-on experience in essential techniques of modern biology. In the practicum, students will answer a specific biologic question through experimentation. Faculty in participating laboratories will be responsible for providing an overview of the biologic interest of the laboratory, overseeing the development of a specific, defined project, teaching the theory of specific techniques to be employed, and training the students in the application of these techniques. Students will be evaluated through a written report and oral presentation in a laboratory meeting-type setting. Pre-requisite: Graduate standing or instructor consent. NOTE: Lecture format will resume when Labs open fully.</p>				

131352	Economics for Food and Nutrition Policy			
Subject:	Catalog Nbr:			
NUTR	0238			
2022 SPRG	Primary	William Masters	William.Masters@tufts.edu	
<p>This course equips students with the economic principles used to explain and predict consumption and production choices, market interactions and government interventions in the food system. We use the graphical methods taught in standard, one-semester courses on the principles of economics, applied to current news stories and data sources about food and nutrition problems in the United States and around the</p>				

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world. In so doing students gain the skills needed to: (1) explain and predict consumption, production and trade in agriculture and food markets; (2) evaluate the social welfare consequences of market failure, collective action and government policies including regulation, taxation and enforcement of property rights in agriculture and food markets; (3) measure poverty and inequality in income, wealth, nutrition and health, as influenced by changes in markets and policies; and (4) describe macroeconomic relationships, fluctuations and trends in incomes, employment, economic growth and development. Textbook in syllabus is recommended not required. Pre-requisite: Graduate standing or instructor consent.

131383	Emerging Technologies And Nutrition Communication			
Subject:	Catalog Nbr:			
NUTR	0239			
<p>The course begins with an overview of the role of technology in nutrition communication through a grounding in core concepts and a survey of technology in the field of health and nutrition communication. It then provides an orientation to three specific uses of Internet-based communication technology (dissemination, collaboration, and knowledge) through hands-on opportunities that encourage students to use and evaluate specific tools and their appropriateness to various nutrition communication contexts. Throughout the course, students work on a group that utilizes one or more technologies covered.</p>				

131447	Nutrition Science Journal Club			
Subject:	Catalog Nbr:			
NUTR	0240			
2021 SPRG	Primary	Paul Jacques	paul.jacques@tufts.edu	
2022 FALL	Primary	Tammy Scott	tammy.scott@tufts.edu	
2022 SPRG	Primary	Alice Lichtenstein	alice.lichtenstein@tufts.edu	
<p>Students in this course will critically evaluate peer-reviewed articles through presentations and class discussion, focusing on recent findings in nutrition research. This purpose of this course is to introduce students to the current state of research in biochemical and molecular nutrition and nutrition epidemiology; expose students to principles of various research approaches (including in vitro experiments, animal models, observational studies, clinical trials) and analytical methods used in these fields of research; and provide experience in reviewing and critiquing research articles. It also provides the opportunity to practice creating scientific presentations, to gain experience in public speaking and to meet and discuss research articles with guest faculty facilitators who have expertise in the weekly topic. The latter has the added benefit of allowing students in their first and second year of the BMN and NEDS programs to meet and interact with a variety of Friedman faculty. The primary format of this course will be student-selected and student-led presentations of recent publications in the nutrition science literature. The course is a two-semester sequenced course. Students are required to give a PowerPoint presentation at least once and based on course enrollment it will be twice. The PowerPoint presentations will need to provide a critical assessment of a recent research article. Presentation dates are assigned at the beginning of the semester. This course will also include one introductory faculty-led lecture on: 1) Developing the skills and knowledge essential to understanding and critiquing research reports and 2) Effectively communicating the relevant supporting material, results, and conclusions of primary research reports. All BMN and NEDS MS and PhD students are required to complete this two semester sequenced course for their degree and encouraged to take this course within the first two years of matriculation to the Friedman School. Students in other programs are welcome to participate in this</p>				

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course. The grading basis for this course is Satisfactory/Unsatisfactory. Pre-requisite: Graduate standing or instructor consent.

131468	Food for All: Ecology, Biotechnology & Sustainability			
Subject:	Catalog Nbr:			
NUTR	0241			
2020 Fall	Primary	Colin Orians		colin.orians@tufts.edu
<p>An interdisciplinary examination of the pros and cons of two divergent approaches to meeting the increasing global food demand: organic farming and genetic engineering. Contrasting crops grown in developing and industrialized countries serve as case studies to evaluate: (1) how ecological knowledge makes food production more sustainable; (2) what existing and emerging approaches can, in the face of climate change, contribute to a reliable supply of nutritious food; and (3) the political and economic drivers that shape who has access to these technologies. An important focus is developing communication skills for negotiating stakeholder-specific perspectives (growers, advocacy groups, industry, governmental agencies). Recommendations: Intro Bio or Intro Chemistry or equivalent. Cross-listed with AS&E's BIO 0185.01.</p>				

132234	Summer Internship			
Subject:	Catalog Nbr:			
NUTR	0298			
Please see Friedman's website for detailed course description.				

132248	Nutrition in the Life Cycle			
Subject:	Catalog Nbr:			
NUTR	0301			
2022 SPRG	Primary	Erin Hennessy		erin.hennessy@tufts.edu
<p>This course covers nutrition issues from preconception throughout life, with a particular emphasis on nutrition correlates of normal growth and development and on the consequences of under and over nutrition. It briefly considers the role of nutrition in the context of the normal physiologic changes that occur with aging. This is a 1.5 semester hour unit course and meets the first half of the semester. Prerequisite: NUTR 0202: Principles of Nutrition Science or NUTR 0245 AND NUTR 0246 or equivalent and graduate standing or instructor consent. Enrollment priority for NICBC students, and for FANPP and AFE PhD students, as well as for FANPP students pursuing the Nutrition Interventions specialization.</p>				

132280	Risk And Disaster Management			
Subject:	Catalog Nbr:			
NUTR	0302			
<p>(Cross-listed as DHP D233 (Fletcher). This course (requiring advance reading and extensive participation in discussion) serves as a bridge between classes on nutrition in a developmental context and those focused on relief in complex emergencies. Manifestations of household and national vulnerability differ in these contexts, but only by a matter of degrees. Risks of individual nutrition failure are related to risks of household food</p>				

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security, which in turn relate to risks inherent in the physical, economic, cultural and political environment that is the backdrop to household behavior. The conditions that determine food and nutritional stresses persist in countries undergoing economic transformation and political unrest, but also in those ill equipped to cope with the stresses of globalization, increasing poverty, and declining public sector responsibility. Much international work involves being able to assess the potential risks and returns of alternative development strategies in such diverse contexts. This course was formerly listed as NUTR 231.

132292	Determinants of U.S. Food Policy			
Subject: NUTR	Catalog Nbr: 0303			
2022 FALL	Primary	Parke Wilde		Parke.Wilde@tufts.edu
<p>Focuses on government food-related programs from an economic and political perspective. Reviews the evolution of a range of policies and programs, analyzing their effects on the U.S. economy and on household consumption and the farm economy, as well as on food consumption at the national, household, and individual level. Existing policies and programs are related to the political and economic environment and to changing food consumption patterns in American society. Food assistance programs (e.g., Food Stamps), nutrition programs, food supply and agricultural price policies, and consumer protection and information are considered. Prerequisites: NUTR 238: Economics of Food Policy Analysis and NUTR 207: Statistical Methods for Nutrition Science and Policy/NUTR 0307: Regression Analysis for Nutrition Policy or equivalent or instructor consent.</p>				

132320	Nutrition, Food Security, and Development			
Subject: NUTR	Catalog Nbr: 0304			
2022 FALL	Primary	Jennifer Coates		jennifer.coates@tufts.edu
<p>This course encourages critical, evidence-driven analysis of effective government policy responses to food security and nutrition challenges in low-income countries. Through lecture, discussion, case studies, and secondary data analysis, students will be able to: discuss the range of policy levers that are used to enact national food security policy in developing countries; describe evidence of the effectiveness of these policies and programs in improving food security, poverty, and nutrition in different contexts; analyze key sources of food and socio-economic data to understand and inform policy-relevant decisions; and produce reasoned and critical writing to influence critical policy debates. Prerequisites: Graduate standing, NUTR 203: Fundamentals of Public Policy and NUTR 238: Economics of Food Policy Analysis, or instructor consent. Important: Prerequisites may not be taken concurrently with NUTR 304.</p>				

132334	Nutritional Epidemiology			
Subject: NUTR	Catalog Nbr: 0305			
2022 FALL	Primary	Fang Fang Zhang		Fang_Fang.Zhang@tufts.edu
<p>This course is designed for graduate students at either the Master's or Ph.D. level, who are interested in conducting or better interpreting epidemiologic studies relating diet and nutrition to health and disease. There is an increasing awareness that various aspects of diet and nutrition may be important contributing</p>				

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factors in chronic disease. There are many important problems, however, in the implementation and interpretation of nutritional epidemiologic studies. The purpose of this course is to examine epidemiologic methodology in relation to nutritional measures, and to review the current state of knowledge regarding diet and other nutritional indicators as etiologic factors in disease. This course is designed to enable students to better conduct nutritional epidemiologic research and/or to better interpret the scientific literature in which diet or other nutritional indicators are factors under study. Prerequisites: NUTR 0202: Principles of Nutrition Science and NUTR 0204/PH 0201: Principles of Epidemiology and NUTR 0206: Biostatistics I/PH 0205: Principles of Biostatistics. Prerequisites may not be taken concurrently with NUTR 0305.

132349	Communicating Health Information to Diverse Audiences			
Subject:	Catalog Nbr:			
NUTR	0306			
2022 FALL	Primary	Laurie LaRusso		Laurie.Larusso@tufts.edu
<p>This intensive writing course will reinforce the concrete writing skills and knowledge required of a competent and thoughtful health/medical writer. The course is structured around weekly writing assignments, detailed feedback from the instructor on each assignment, class discussions, in-class exercises, in-class writing, peer editing, and short supplementary readings. Classroom discussions and assignments will explore the reporting of nutrition and health topics in a variety of print and online media, audience analysis, evaluating sources, infographics, and editorial content development. Prerequisite: NUTR 220 or instructor consent. Important: Prerequisite may not be taken concurrently with NUTR 306. Class meets first half of the fall term and begins September 8 and ends November 10, 2021.</p>				

132363	Regression Analysis for Nutrition Policy			
Subject:	Catalog Nbr:			
NUTR	0307			
2022 SPRG	Primary	Parke Wilde		Parke.Wilde@tufts.edu
<p>Part two of a one-year, two-semester course sequence in statistics. This course is intended for students whose main focus is non-experimental or survey-based research. The course covers non-experimental research design, simple linear regression, multiple regression, analysis of variance, non-linear functional forms, heteroskedasticity, complex survey designs, and real-world statistical applications in nutrition science and policy. Students will make extensive use of Stata for Windows. NOTE: Students cannot receive credit for both NUTR 0307 and its second semester counterpart NUTR 0309. Pre-requisites: NUTR 0207 or NUTR 0206 and graduate standing or instructor consent.</p>				

132377	Nutrition in Emergencies Policies, Practice and Decision-Making			
Subject:	Catalog Nbr:			
NUTR	0308			
2022 SPRG	Primary	Erin Boyd		Erin.Boyd@tufts.edu
<p>Required for students enrolled in the Master of Arts in Humanitarian Assistance (MAHA) Program. This course will examine the central role and importance of nutrition security and food security in complex emergencies. The implications of addressing nutritional needs of affected populations for assessment, program design and implementation, and policy development will be examined. The course aims to provide an understanding of:</p>				

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nutrition outcomes in emergencies (malnutrition, morbidity and mortality); causes of malnutrition and mortality in emergencies; approaches to mitigate and address undernutrition in complex emergencies. The course will also develop a broader range of knowledge related to humanitarian response. This course is cross-listed (D237) with The Fletcher School. Pre-requisite: Graduate standing or instructor consent.

132392	Statistical Methods for Nutrition Research II			
Subject:	Catalog Nbr:			
NUTR	0309			
2021 SPRG	Primary	Anastasia Marshak	Anastasia.Marshak@tufts.edu	
2021 SPRG	Primary	Naglaa El-Abbadi	Naglaa.El_Abbadi@tufts.edu	
2022 SPRG	Primary	Mei Chung	Mei_Chun.chung@tufts.edu	
<p>This course is part two of a one-year, two-semester course on statistical methods for nutrition research. The focus of this course is on simple and multiple regression methods for continuous, binary, and survival data. Emphasis is on developing a conceptual understanding of the application of these techniques to solving problems rather than on numerical details. In the computer lab sessions, students will use concepts learned during lecture to analyze data using statistical software R and RStudio, an integrated development environment for R. NOTE: Students cannot receive semester hour units for both NUTR 309 and NUTR 307: Regression Analysis for Nutrition Policy. Prerequisites: Biostatistics I (NUTR 0206) or Statistical Methods for Nutrition Science and Policy (NUTR 0207) or equivalent, and graduate standing or instructor consent. Ability to conduct exploratory data analysis using R.</p>				

132420	Qualitative Research Methods for Nutrition			
Subject:	Catalog Nbr:			
NUTR	0310			
2022 SPRG	Primary	Ellen Messer	ellen.messer@tufts.edu	
<p>NUTR 310 teaches principles and practical skills of qualitative inquiry in an interactive seminar format. Participants will learn how to design and carry out qualitative research through weekly background readings and written assignments, critical case-study discussions, and practical class exercises. They will also take part in the design, implementation, analysis, and evaluation of a local qualitative research project that involves practical, hands-on experience. The first part of the course will focus on the foundations of qualitative inquiry, qualitative methods, their strengths and challenges, standards for quality, and tools for critical assessment of insights derived from these methods. The second part of the course will be dedicated to learning how to design qualitative studies, including data collection, data management strategies, and approaches to data analysis. Participants will gain practical experience by developing and implementing a small research study, which will include the elements of research design, field-note documentation, participant observation, in-depth interviews, focus groups, visual methods, analysis, and writing/dissemination. Students should have exposure to research methods in social or health sciences prior to enrollment in this course. Prerequisites: Graduate standing or instructor consent.</p>				

132434	Nutrition Data Analysis			
Subject:	Catalog Nbr:			
NUTR	0311			

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This course will cover knowledge of advanced Stata statistical computing, data base construction, error detection and correction, creation of composite variables, descriptive statistics, univariate analyses, regression analysis of continuous, binary and categorical outcomes, ANOVA & ANCOVA, analysis of clustered data including cluster randomized trials, panel data analysis & introduction to multilevel modeling, factor analysis; and the construction of scales and factor scores. Students pose a research question, identify appropriate statistical techniques for answering the research question, perform the analyses and report on the results in an article suitable for publication in an academic journal. Advanced Stata programming will be taught in weekly hands on lab sessions.

132447	Nutrition and Chronic Disease			
	Subject:	Catalog Nbr:		
	NUTR	0312		
	2022 SPRG	Primary	Kyla Shea	Kyla.Shea@tufts.edu
<p>This course covers issues in modern nutrition, public health and chronic disease. We will focus on the major non-infectious diseases present in Western countries that are caused by modifiable lifestyle choices and the role that diet plays in maintenance of health and the risk of chronic diseases. Meets first half of the spring semester. Enrollment priority for NICBC students. Prerequisite: graduate standing or instructor consent.</p>				

132462	Nutritional Assessment			
	Subject:	Catalog Nbr:		
	NUTR	0313		
<p>This course will provide an overview of the common nutritional and food security assessment tools. Laboratory and field methods for population wide nutritional deficiency assessment, nutritional screening and surveillance, dietary assessment, hunger and food security as well as diet diversity and food group indices will be examined. Clinical methods including body composition, biochemical and clinical factors related to macro and micronutrient deficiency will be discussed. Using practical training and demonstrations students will learn how to select and apply these methods in program-based or research-based settings. Issues of validity and reliability of these methods will be addressed mainly in the context of strengths and limitations of each method. At the end of the course, students should have some familiarity with the common nutritional assessment techniques as well as their practical applications at the individual and population wide levels.</p>				

132476	Study Design in Nutrition Research			
	Subject:	Catalog Nbr:		
	NUTR	0314		
<p>Successful interventions, in research or for programs, rely on intentional design that begins with a hypothesis that can be developed into a conceptual model and translated into an intervention. This course describes this process, from conception, through design, to execution and implementation. Students are guided through generating hypotheses and introduced to specific principles of designing feasible studies—including intervention and observational studies—that address these hypotheses. Students will learn how having a critical understanding of research-based approaches can inform programmatic intervention and evaluation. Guest lectures will present real-world examples that illustrate this process. Students will gain experience in identifying appropriate funding sources and developing proposals that meet the interests and missions of</p>				

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potential funders. Students will also present their proposals, and review and critique the work of their classmates. Enrollment limited to 12 students with priority given to NICBC degree program students. NUTR 207 or NUTR 206 or equivalent, NUTR 204 or equivalent, and familiarity with basic methods of dietary assessment, and graduate standing or instructor consent.

132516	Applied Nutritional Biochemistry			
Subject: NUTR	Catalog Nbr: 0315			
2022 FALL	Primary	Alice Lichtenstein		alice.lichtenstein@tufts.edu
<p>This course will focus on human nutrition and metabolism. Emphasis will be placed on the biological ramifications of altering substrate load and essential nutrients caused by intended and unintended changes in dietary intake. The functional and regulatory roles of macronutrients and micronutrients will be stressed. Additional components of the course will include integrating nutrition policy with nutrition science. Students will be guided in connecting the lay and scientific literature in the areas of biochemistry and nutrition, and exploring how each informs the other. Opportunities will be available for preparing short written reports and oral presentations on contemporary research issues related to the essential nutrients and current topics. Current challenges in the field of nutrition will be related to the lecture material. Priority enrollment for MS/DI students. Pre-requisite: NUTR 0202 or equivalent, and one undergraduate level biochemistry course taken within the past five years, or instructor consent.</p>				

132530	Advanced Medical Nutrition Therapy			
Subject: NUTR	Catalog Nbr: 0316			
2022 SPRG	Primary	Kelly Kane		Kelly.Kane@tufts.edu
2022 SPRG	Primary	Kathrina Prelack		kprelack@tufts.edu
<p>Nutritional biochemistry and physiology as related to selected pathophysiological conditions, with attention paid specifically to dietary assessment and various indices of nutritional status. Conditions with particular relevance to clinical nutrition are emphasized. Pre-requisites: Graduate standing or instructor consent.</p>				

132544	Positive Deviance for Behavior Change: A Course for Practitioners			
Subject: NUTR	Catalog Nbr: 0317			
<p>Positive Deviance provides a unique approach for solving problems that require social or behavioral change. At its heart is the belief that in every community there are a few individuals "positive deviants" whose uncommon practices or behaviors enable them to outperform or find better solutions to pervasive problems than their neighbors with whom they share the same resource base. Identifying the positive deviants' special practices/behaviors reveals hidden resources already present in the environment, from which it is possible to devise solutions to pervasive community problems, solutions that are sustainable as well as cost-effective. Students will read and discuss positive deviance and behavior change literature, review and critique studies and programs, and design and carry out positive deviance inquiries in the Boston area. Grading is Satisfactory/Unsatisfactory (S/U). Course enrollment is limited to 15. This course was formerly listed as NUTR 291PD.</p>				

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132557	Statistical Methods For Epidemiology		
Subject: NUTR	Catalog Nbr: 0318		
<p>This course focuses on the identification of confounding, effect modification and bias in epidemiological data. Methods of control of confounding for continuous, categorical and time to event data will be explored. Topics include analysis of data from normal, binomial and Poisson distributions, logistic and Poisson regression, and survival analysis using actuarial, Kaplan-Meier and Cox's proportional hazards, correlated data analysis, generalized estimating equations, and the mixed model. The art and science of statistical modeling and data reduction will be introduced. The course emphasizes practical application and makes extensive use of the SAS programming language.</p>			

132570	Intermediate Epidemiology		
Subject: NUTR	Catalog Nbr: 0319		
2022 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu
<p>Intermediate Epidemiology exposes students to a variety of key concepts and methods when carrying out epidemiologic studies and teaches students applied skills in analyzing epidemiologic data and interpreting study findings appropriately. This course includes a 2-hour lecture session followed by a 1-hour lab session. The lecture session will present epidemiologic methods and concepts beyond the Principles of Epidemiology, and review relevant statistical methods and their applications in epidemiologic studies. The lab session will prepare students with practical skills in conducting and analyzing epidemiologic studies using SAS. The lab session will be taught in a computer lab equipped with SAS. Pre-Requisites: NUTR 204, NUTR 206 or equivalents and NUTR 309 or equivalents, or concurrently taking NUTR 309 or equivalents, or instructor consent.</p>			

132584	Nutritional Impact on the Immune System and Related Diseases		
Subject: NUTR	Catalog Nbr: 0320		
<p>This special topics course will review the impact of various nutrients (in both deficient and supplemental states) on maintaining the homeostasis of the immune system during physiological and pathological states as well as during different developmental stages of life. The implications for disease development and/or prevention will be discussed. Special emphasis will be given to understanding the mechanism of nutrients' effect on the immune system at biochemical, molecular and cellular levels. The role of nutrient status in maintaining "optimal" immune function and "disease prevention" and its implications for determining the recommended dietary allowance will be discussed. This course was formerly listed as NUTR 291IM.</p>			

132599	Dietary Antioxidants and Degenerative Diseases		
Subject: NUTR	Catalog Nbr: 0321		

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This course will discuss the role of dietary antioxidants and pro-oxidants on the pathogenesis of degenerative diseases at molecular, cellular and whole body level. The balance of pro-oxidants-antioxidants on free radical generation, lipid peroxidation, protein oxidation, DNA damage and cell injury will be reviewed in the context of chronic and acute diseases such as cardiovascular disease, cancer, diabetes, arthritis, Alzheimer's disease. This course emphasizes the role of dietary antioxidant vitamins E and C, carotenoids, polyphenols, selenium, iron, zinc and copper on oxidative stress and antioxidant defense mechanisms. This course was formerly listed as NUTR 291DA.

132614	International Humanitarian Response			
Subject: NUTR	Catalog Nbr: 0324			
	2021 SPRG	Primary	Gregory Gottlieb	Gregory.Gottlieb@tufts.edu
	2022 SPRG	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu
	2022 SPRG	Primary	Paul Howe	Paul.Howe@tufts.edu
<p>This course offers practical training in the complex issues and field skills needed to engage in humanitarian work. Students will gain familiarity with the concepts and international standards for humanitarian response. While providing a solid theoretical foundation, the course will focus on practical skills such as conducting rapid assessments, ensuring field security, and interacting with aid agencies, the military, and the media during humanitarian crises. The course culminates with a three-day intensive field simulation of a humanitarian crisis that will take place on Friday, April 29, 2022 (12:00-6:00 PM) and Saturday, April 30, 2022 (8:00 AM-6:00 PM); attendance required. This Spring 2022 semester the fee to cover camping gear hire, food, and other equipment costs has been waived. The course starts January 26, 2022 and ends May 4, 2022.</p> <ul style="list-style-type: none"> • Humanitarian response community and history • International Humanitarian Law and Human Rights Law • Sphere standards (shelter, water and sanitation, food security, health) • Civil-military relations, media skills, logistics, and budgeting • Monitoring and evaluation, accountability • Personal security, mental health, stress, and teamwork • Humanitarian technology, and crowdsourcing, and GPS skills <p>This course is cross-listed with The Fletcher School (D213) and enrollment is limited to 8 Friedman students and 10 Fletcher students. Priority enrollment for Friedman is given to: 1) FANPP students pursuing the Humanitarian Assistance Specialization, 2) MAHA students, 3) Graduating and Second-Year students, 4) First-Year students. Prerequisite: Graduate standing or instructor consent.</p>				

132626	Evidence-Based Interventions for Child Malnutrition			
Subject: NUTR	Catalog Nbr: 0325			
	2022 FALL	Primary	Shibani Ghosh	Shibani.Ghosh@tufts.edu
<p>This course will build on current knowledge and translation of nutrition science basis for interactions for prevention and treatment of child malnutrition (wasting and stunting) in developing countries. The emphasis will be on protein quality, micronutrient content especially iron, Vitamin A, zinc, folate and essential fatty</p>				

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acids. Current interventions will be analyzed and discussed in this manner with emphasis on criteria for effectiveness studies. Pre-requisites: Graduate student or instructor consent.

132640	Food and Agricultural International Trade
Subject: NUTR	Catalog Nbr: 0326
The course is an exploration of international trade policy related to food and agriculture. We will review trade theory, trade policy, and value chains. Students will develop policy briefs on topics of interest. Prerequisite: NUTR 238: Economics for Food and Nutrition Policy, graduate standing or instructor consent.	

132654	Sustainable Diets and Food Consumption
Subject: NUTR	Catalog Nbr: 0327
2020 Fall	Primary
Hugh Joseph	hugh.joseph@tufts.edu
Interest in 'sustainable diets' has expanded rapidly over the past decade. In this newly restructured course, 'sustainable diets' approaches are examined using systems-based, trans- and multi-disciplinary models that incorporate social, economic, governance, health, cultural, and environmental dimensions. Core elements will cover: (a) definitions, terminologies, models, application to diets and food systems; (b) frameworks and limitations of sustainable diets; (c) food consumption as an alternative framework; (d) sustainable food consumption guidelines; and (e) strategies to promote more sustainable food consumption. An emphasis will be on transitioning away from diets per se to a novel 'food consumption' model, using sustainable agriculture as a reference framework. Students each week will also select and discuss papers covering diverse aspects of sustainable food systems. Major assignments include (i) applying an innovative methodology - multi-criteria analysis - to assess the relative sustainability of various foods; and (ii) developing guidelines for food consumption as an alternative to typical sustainable dietary guidelines approaches. An advanced course and background in basic nutrition and in food systems is important. Pre-requisite: Graduate standing or instructor consent.	

132667	Understanding Nutrition Science Using Systematic Review And Meta Analysis
Subject: NUTR	Catalog Nbr: 0328
Nutrition is an increasingly important topic for clinical medicine and public health policy. An unbiased assessment of the scientific literature is critical when formulating public health policy, allocating health care resources, reviewing and approving health claims, counseling patients who have varying biological needs and comorbidities, and targeting scarce research dollars. The large body of scientific literature, often with seemingly conflicting results, presents a formidable challenge to those making these decisions. This course will focus on the methods and uses of systematic reviews and meta-analyses for nutrition studies and their applications to the field of nutrition.	

132680	Agricultural Science And Policy II
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Subject: NUTR	Catalog Nbr: 0333			
2020 Fall	Primary	Christian Peters	No Email on file.	
2022 FALL	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
<p>Second part of a two-semester sequence required of AFE students. This course covers the major biological, chemical and physical components of agricultural systems. Each is discussed from the viewpoints of both the underlying natural processes and principles, and their significance for major agricultural, food safety, and environmental policy issues in the US today. In this second semester, the topics are best management practices, livestock systems, food systems, climate change and bio-energy. Major policy issues associated with these areas include protecting groundwater from nitrogen contamination; regulating and monitoring pesticide use; regulating agricultural biotechnology; and regulating "factory" animal production. Prerequisites: NUTR 215: Fundamentals of U.S. Agriculture AND NUTR 233: Agricultural Science and Policy I or instructor consent.</p>				

132694	Senior Clinical Rotations			
Subject: NUTR	Catalog Nbr: 0335			
2022 FALL	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
<p>Required of senior standing students enrolled in the Combined Masters Degree/Dietetic Internship program. The grading basis for this course is Satisfactory/Unsatisfactory. Prerequisite: Graduate standing or instructor consent.</p>				

132709	Nutritional Genomics And Epigenomics			
Subject: NUTR	Catalog Nbr: 0336			
<p>The course, which consists of two modules, Nutritional Genomics and Nutritional Epigenomics, will offer a state of science approach to unravel the effects of diet on health. In the Nutritional Genomics module, students will learn how nutrients affect gene expression, how nutrients and genes interact, and how nutrients affect the process of diseases such as cardiovascular diseases and metabolic syndrome through genetic mechanism. The Nutritional Epigenomics module will provide the most recent knowledge regarding epigenetic phenomenon, a mechanism that alters gene expression without genetic changes, how nutrients affect epigenetic phenomena, and how nutrients affect physiologic and pathologic processes such as embryonic development, aging, and cancer by modifying epigenetic phenomena.</p>				

132722	Environmental Economics of Food and Agriculture			
Subject: NUTR	Catalog Nbr: 0341			
2022 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu	
<p>The primary goal of this class is to learn the tools and concepts necessary for economic analysis of a variety of environmental, natural resource, and agricultural issues, particularly with regard to environmental and resource use aspects of food production and consumption. Throughout the semester, we will be addressing a broad range of problems and issues in the context of microeconomic theory and methods. Microeconomics is</p>				

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the social science that deals with balancing our (seemingly unlimited) wants and needs within the limitations of our personal, social, and natural environments. It therefore provides useful frameworks for considering issues such as our use of land; how we invest in protecting the quality of our air, water, and soil; the impact of our food production decisions on other species; how food consumption decisions intersect with environmental concerns; and the effect of climate change on food production. A recurring topic in this class will be on why and when markets fail to ensure the quality of our environment, as well as how collective action, institutions, and market forces can be used to help address these failures. This course is required for AFE students and is recommended for any Friedman student with an interest in economic aspects of the food/environment interface. Pre-requisite: NUTR 0238: Economics for Food and Nutrition Policy or a similar course in microeconomic principles or consent of instructor.

132736	Nutritional Biochemistry and Physiology: Macronutrients			
Subject: NUTR	Catalog Nbr: 0370	2022 FALL	Primary	Stefania Lamon-Fava stefania.lamon-fava@tufts.edu
<p>This course is required of all students in the Biochemical and Molecular Nutrition degree program, as well as for the Biochemical and Molecular Nutrition specialization option in the Nutrition Data Science degree program. The course will expand understanding of the biological roles of nutrients and their metabolism using basic knowledge in physiology, biochemistry, cell biology and molecular biology. It will integrate information on the roles of macronutrients in nutrition and health especially on their relationship to cardiovascular disease, diabetes and cancer, as well as provide a forum for discussing the experimental approaches to studying macronutrient metabolism and function. NUTR 370 is an advanced course in the nutrition sciences and will cover topics related to carbohydrates and energy metabolism, fiber, protein and amino acids, and lipids. Students are expected to be familiar with the material covered in NUTR 202, as well as the biochemistry course offered at Tufts.</p>				

132750	Nutritional Biochemistry and Physiology: Micronutrients			
Subject: NUTR	Catalog Nbr: 0371	2022 SPRG	Primary	Xiang-Dong Wang xiang-dong.wang@tufts.edu
<p>Required of all students in the Biochemical and Molecular Nutrition and Nutritional Epidemiology programs, NUTR 371 is an advanced course in nutritional sciences. NUTR 371 will cover topics related to minerals, watersoluble micronutrients and fat-soluble micronutrients. Students are expected to be familiar with the material covered in an introductory nutrition course, as well as the biochemistry and physiology courses. Prerequisites: BCHM 0223 (Graduate Biochemistry), NUTR 202 or equivalent.</p>				

132762	MS Continuation Part Time			
Subject: NUTR	Catalog Nbr: 0395			

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132774	MS Continuation Full Time	
Subject:	Catalog Nbr:	
NUTR	0396	

135600	Directed Study			
Subject:	Catalog Nbr:			
NUTR	0397			
2020 Fall	Primary	Diane McKay	diane.mckay@tufts.edu	
2020 Fall	Primary	Christian Peters	No Email on file.	
2020 Fall	Primary	William Masters	William.Masters@tufts.edu	
2020 Fall	Primary	Jiantao Ma	Jiantao.Ma@tufts.edu	
2020 Fall	Primary	Shibani Ghosh	Shibani.Ghosh@tufts.edu	
2021 FALL	Primary	Erin Hennessy	erin.hennessy@tufts.edu	
2021 FALL	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu	
2021 FALL	Primary	Larissa Calancie	Larissa.Calancie@tufts.edu	
2021 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu	
2021 SPRG	Primary	Nicola McKeown	nicola.mckeown@tufts.edu	
2021 SPRG	Primary	Jennifer Coates	jennifer.coates@tufts.edu	
2021 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu	
2022 SPRG	Primary	Sara Folta	sara.folta@tufts.edu	
2022 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu	
2022 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu	
2022 SPRG	Primary	Mei Chung	Mei_Chun.chung@tufts.edu	
<p>This Directed Study course is a 1.5 semester hour unit (SHUs) course with a Satisfactory/Unsatisfactory Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: https://nutrition.tufts.edu/students/registrar). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: https://nutrition.tufts.edu/students/registrar/forms.</p>				

135642	Doctoral Candidacy Preparation
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Subject: Catalog Nbr:
NUTR 0399

PhD students preparing for their PhD Qualifying Examination need to enroll in this course, NUTR 0399 (full-time equivalent course), in order to remain in active status.

135681	Advanced Analytic Methods For Nutrition Policy Research
Subject: Catalog Nbr: NUTR 0401	
<p>This course teaches advanced methods for food and nutrition policy research. A central theme is the difficulty of inferring causation using non-experimental data, because of "omitted" or "confounding" factors. We focus on four strategies for addressing omitted variables: a) proxy variables, b) the "difference-in-differences" approach, c) simple models for panel data (fixed effects and random effects), and d) instrumental variables (two-stage least squares). We also address methods for solving the most frequently encountered data problems, such as multicollinearity, complex survey design, and outliers. Most methods are drawn from the field of econometrics, but they are chosen for their likely usefulness for social science research more generally. Using examples of real nutrition policy research questions in the United States and around the world, the course demonstrates the use of advanced analytic methods for defensible and convincing policy analysis. This course was formerly listed as NUTR 281.</p>	

135708	Phd Thesis Only Part Time
Subject: Catalog Nbr: NUTR 0402	

135787	PhD Thesis Only
Subject: Catalog Nbr: NUTR 0403	
<p>PhD students after completing their PhD Qualifying Exam and while preparing for their Dissertation Defense must enroll in this course, NUTR 0403 (full-time equivalent course), every semester to remain in active status.</p>	

135801	Doctoral Research Seminar: Food and Nutrition Policy
Subject: Catalog Nbr: NUTR 0404	
2022 FALL Primary Beatrice Rogers	beatrice.rogers@tufts.edu
<p>This seminar gives doctoral students the opportunity to present their research at various stages from earliest planning to preparing for their proposal and thesis defenses. The seminar is designed to offer doctoral students a forum for discussing issues, methodologies, and research findings at a higher plane of analysis. Will represent a venue for in-depth, cross-disciplinary exploration of challenging topics. Under the direction of one or more faculty members, students will be expected to facilitate topic discussions and guide each other's research, evaluate methods, and critique research findings, often in fields outside of nutrition. Students will</p>	

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be actively challenged to explore cutting-edge topics in innovative ways. The seminar offers students an opportunity to apply new methodologies or insights directly to their own work and return to the seminar at different stages of preparation for further review. In addition, students will develop more presentational skills, and learn the art of giving and receiving constructive criticism. The grading basis for this course is Satisfactory/Unsatisfactory.

NOTE: AFE, FANPP, and NICBC doctoral candidates are required to fulfill at least two semesters during the period of their doctoral program; participation by FANPP doctoral students beyond the two semesters requirement is strongly encouraged. Other doctoral students are welcome.

136001	Directed Study			
Subject:	Catalog Nbr:			
NUTR	0497			
2021 FALL	Primary	Edward Saltzman	edward.saltzman@tufts.edu	
2021 SPRG	Primary	Sara Folta	sara.folta@tufts.edu	
2021 SPRG	Primary	Sai Das	sai.das@tufts.edu	
2021 SPRG	Primary	Dariusz Mozaffarian	Dariusz.Mozaffarian@tufts.edu	
2021 SPRG	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu	
2022 SPRG	Primary	Christina Economos	christina.economos@tufts.edu	
2022 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu	
2022 SPRG	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
2022 SPRG	Primary	Erin Boyd	Erin.Boyd@tufts.edu	
2022 SPRG	Primary	William Masters	William.Masters@tufts.edu	
<p>This Directed Study course is a 1.5 semester hour unit (SHUs) course with a Letter Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: https://nutrition.tufts.edu/students/registrar). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: https://nutrition.tufts.edu/students/registrar/forms.</p>				

136015	Research Practicum	
Subject:	Catalog Nbr:	

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NUTR 0501

Required of Post-Doctoral and Training Grant Fellows. Grading is Satisfactory/Unsatisfactory.

138644	Transfer Credit
Subject: TRAN	Catalog Nbr: 9999

138799	Anthropology of Food and Nutrition			
Subject: NUTR	Catalog Nbr: 0330	2021 SPRG	Primary	Ellen Messer ellen.messer@tufts.edu
<p>This course provides an advanced introduction to anthropological theory and methods designed for food and nutrition science and policy graduate students. Section 1 covers anthropology's four-field modes of inquiry, cross-cutting theoretical approaches and thematic interest groups, their respective institutions and intellectual concerns. Section 2 demonstrates applications of these concepts and methods to cutting-edge food and nutrition issues. Assignments and activities incorporate background readings, related discussions, and short writing assignments, plus an anthropological literature review on a focused food and nutrition project, relevant to their particular interests. The course overall encourages critical thinking and scientific assessment of anthropology's evidence base, analytical tools, logic, and meaning-making, in the context of contributions to multi-disciplinary research and policy teams. Pre-requisites: Some social science background and graduate standing or instructor consent. Offered every other spring semester.</p>				

138933	Supply Chain Management			
Subject: CRBU	Catalog Nbr: 0854			
Supply Chain Management				

139207	Nutritional Biochemistry with Community/Clinical Applications: Macronutrients			
Subject: NUTB	Catalog Nbr: 0205	2021 FALL	Primary	Lynne Ausman lynne.ausman@tufts.edu
<p>Students will explore the fundamental roles of nutrients in biological systems and the implications of macronutrient biological functions on food and nutrition policy. Emphasis will be placed on the function of nutrients as defined by their chemistry, interrelations among nutrient functions, mechanistic approaches in the analysis of nutrient-disease relationships, and recent advances in the basic sciences related to nutrition and nutrient function. The course will integrate examples of community, clinical and public health policy applications throughout the term. Published journal articles from the peer reviewed literature, case histories, and public policy documents will form the basis for critical review and discussion. This is the first of a two-course sequence (NUTB 205 and NUTB 305; these courses may be taken in either order). Prerequisite:</p>				

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Biochemistry.

139208	Economics for Food and Nutrition Policy			
Subject: NUTB	Catalog Nbr: 0238			
2021 FALL	Primary	William Masters	William.Masters@tufts.edu	
<p>This course equips students with the principles used for economic analysis of food and nutrition policies around the world. We use the graphical methods taught in standard, one-semester courses on the principles of economics, but our motivation, examples and applications are focused on food and nutrition problems in the United States and elsewhere. On completion, students will be able to obtain the data and apply the analytical methods needed to: (1) explain and predict consumption, production and trade in agriculture and food markets; (2) evaluate the social welfare consequences of market failure, collective action and government policies including regulation, taxation and enforcement of property rights in agriculture and food markets; (3) measure poverty and inequality in income, wealth, nutrition and health, as influenced by changes in markets and policies; and (4) describe macroeconomic relationships, fluctuations and trends in incomes, employment, economic growth and development. Completion of the Online Economics Primer in advance of the start of the course is optional for students: https://nutrition.tufts.edu/sites/default/files/documents-forms/NUTB238EconomicsPrimerInfo.pdf.</p>				

139209	Statistical Methods for Health Professionals I			
Subject: NUTB	Catalog Nbr: 0250			
2021 FALL	Primary	Anastasia Marshak	Anastasia.Marshak@tufts.edu	
2021 FALL	Primary	Naglaa El-Abbadi	Naglaa.El_Abbadi@tufts.edu	
<p>Students will critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals from the United States and around the world that are influencing the practice of nutrition science, policy and research. Students learn and use Stata® statistical software for their homework.</p>				

139222	Field Research Methods in Humanitarian Settings			
Subject: NUTC	Catalog Nbr: 0235			

139239	Intermediate Biostatistics: Regression Methods			
Subject: NUTR	Catalog Nbr: 0323			
<p>This course provides a survey of regression techniques for outcomes common in biomedical and public health studies including continuous, count, and binary data. Emphasis is on developing a conceptual understanding of the application of regression techniques to solving problems, rather than on numerical details. The first half</p>				

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of the course focuses on modifications to linear regression models when various assumptions do not hold. The second half of the course explores more advanced topics including logistic regression, Poisson regression, and complex survey weighting. Students will have opportunities to experience the whole life cycle of a statistical manuscript--using real world data given by the instructor as well as data of their own--from cleaning the data, writing the analysis plan, constructing the model, to presenting the work in forms of written report and oral presentation. Prerequisite: NUTR 0309: Statistical Methods in Nutrition Research II or NUTR 307: Regression Analysis for Nutrition Policy or course equivalent (students who wish to use other statistics course as prerequisites please gather a syllabus of the said course and contact the instructor for consent before the end of the Add deadline).

IMPORTANT TO NOTE: NUTR 0323 is cross-listed with PH 0206 only in the Fall semester so Friedman students may enroll via SIS (8 seats available). However, this course is not cross-listed in the Spring semester so Friedman students need to pursue enrollment in PH 0206 (Intermediate Statistics at Tufts Public Health) via the cross-registration process.

139241	Food Security and Nutrition in Emergencies		
Subject: NUTC	Catalog Nbr: 0232		
<p>The course will take a practical programming approach by first, reviewing issues of food security and nutritional assessment, interpretation and response analysis, followed by a focus on the core food security and nutrition actions including food assistance, direct nutrition interventions and interventions to protect and promote food security and livelihoods more broadly. Programming examples explored cover a range of applications from acute emergencies to protracted crises, recovery, and in some cases, food security and nutrition elements of social protection. The evidence base for these actions will be reviewed, along with related international policies, standards and guidelines. A broader range of related and topical issues will also be considered, including humanitarian protection, disaster risk reduction and emergency preparedness, coordination, capacity development, recovery and transition.</p>			

139243	Statistical Methods for Health Professionals II		
Subject: NUTB	Catalog Nbr: 0350		
2022 SPRG	Primary	Anastasia Marshak	Anastasia.Marshak@tufts.edu
2022 SPRG	Primary	Naglaa El-Abbadi	Naglaa.El_Abbadi@tufts.edu
<p>The purpose of this course is to help students gain proficiency applying statistical concepts and procedures for the analysis of health and nutrition data. Statistical analysis techniques used for the analysis of data from experimental and non-experimental research studies covered in this course will include multiple regression assumptions, diagnostics, transformations and robust standard errors, multiple logistic regression, analysis of variance and covariance and analysis of data from cluster randomized trials. In this course students critically evaluate, compare, interpret, judge, summarize and explain statistical results published in research articles in health and nutrition journals that are influencing nutrition science, research, policy, and clinical practice. Students will learn how to formulate research questions, how to identify appropriate statistical techniques, how to perform the analysis with Stata statistical software and report results in tables, text and figures. Prerequisite: NUTB 250: Statistical Methods for Health Professionals I or equivalent.</p>			

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139371		Directed Study			
Subject:	Catalog Nbr:				
NUTR	0397				
2020 Fall	Primary	Xiang-Dong Wang	xiang-dong.wang@tufts.edu		
2020 Fall	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu		
2020 Fall	Primary	Sheldon Rowan	Sheldon.Rowan@tufts.edu		
2020 Fall	Primary	Barbara Shukitt-Hale	Barbara.Hale@tufts.edu		
2021 FALL	Primary	Elena Naumova	elena.naumova@tufts.edu		
2021 FALL	Primary	Nicola McKeown	nicola.mckeown@tufts.edu		
2021 FALL	Primary	Daniel Hatfield	Daniel.Hatfield@tufts.edu		
2021 FALL	Primary	Naglaa El-Abbadi	Naglaa.El_Abbadi@tufts.edu		
2021 FALL	Primary	William Masters	William.Masters@tufts.edu		
2021 SPRG	Primary	Jose Ordovas	jose.ordovas@tufts.edu		
2021 SPRG	Primary	Edward Saltzman	edward.saltzman@tufts.edu		
2021 SPRG	Primary	Virginia Chomitz	Virginia.Chomitz@tufts.edu		
2021 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu		
2021 SUMR	Primary	Kelly Kane	Kelly.Kane@tufts.edu		
2022 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu		
2022 SPRG	Primary	Sai Das	sai.das@tufts.edu		
2022 SPRG	Primary	Patrick Webb	patrick.webb@tufts.edu		
2022 SPRG	Primary	Kyla Shea	Kyla.Shea@tufts.edu		
2022 SPRG	Primary	Nirupa Matthan	nirupa.matthan@tufts.edu		
2022 SPRG	Primary	Parke Wilde	Parke.Wilde@tufts.edu		
2022 SPRG	Primary	Fang Fang Zhang	Fang_Fang.Zhang@tufts.edu		
2022 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu		
2022 SPRG	Primary	Erum Sattar	Erum.Sattar@tufts.edu		
2022 SPRG	Primary	Erin Coughlan	Erin.Coughlan@tufts.edu		
<p>This Directed Study course is a three semester hour unit (SHUs) course with a Satisfactory/Unsatisfactory Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add Deadline for the semester (refer to Friedman's Academic Calendar at: https://nutrition.tufts.edu/students/registrar). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: https://nutrition.tufts.edu/students/registrar/forms.</p>					

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139426	Nutrition Child Development		
	Subject:	Catalog Nbr:	
	NUTR	0212	
<p>This course provides an overview of development during gestation, infancy, childhood, and adolescence, and enables students to think critically about the role of nutrition in child development. We will focus primarily on current issues and controversies in the United States, notably for health promotion and obesity prevention, with international perspectives incorporated during select units. This course complements NUTR 301 (Nutrition & the Life Cycle), as well as NUTR 272 (Physical Activity, Nutrition and Health); the only prerequisite is NUTR 201 (Fundamentals of Nutrition Science) or equivalent.</p>			

139427	Food Politics and Policy in the US		
	Subject:	Catalog Nbr:	
	NUTR	0340	
<p>This course uses contemporary food issues to examine core elements of the U.S. system of government and to illuminate dynamics in American politics and policymaking. Its primary purpose is to develop a clearer understanding of how government institutions function, and how politics broadly understood shape what we end up calling (perhaps with some overstatement) “food policy.” As such, the course focuses its attention on such elements as the constitutional foundations of the U.S. system of government, how the structure of the election system affects policy debate and outcomes, why some organized societal interests have greater access to and leverage with policymakers than others, and, overall, why obtaining fundamental policy change is difficult – yet not impossible</p>			

139428	Food Systems Modeling and Analysis		
	Subject:	Catalog Nbr:	
	NUTR	0342	
	2022 SPRG	Primary	Alexandra Thorn
			Alexandra.Thorn@tufts.edu
<p>Agriculture and food industries are a subject of growing interest in terms of their resource requirements, ecological impacts, and sustainability. With a focus on local and regional food systems in the United States, this course will provide a foundation in some of the methods of modeling and analysis used to study food systems. We will address several types of approaches, generally building in complexity, starting with net balances of production and consumption and continuing through modeling carrying capacity, foodshed analyses, system dynamics, and integrated transdisciplinary modeling. Students will learn what types of questions are best addressed through modeling approaches, the methods used to conduct food systems models, and the data required to complete the analyses. In addition, they will have opportunities to conduct simple analyses through in-class exercises. Finally, students will learn how models might be relevant to the development of policy related to local and regional food systems or dietary changes to reduce environmental impact. Prerequisite: NUTR 0231: Fundamentals of GIS or an equivalent course with instructor’s consent and graduate standing or instructor consent.</p>			

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139456	Nutritional Biochemistry with Community/Clinical Applications: Micronutrients			
Subject: NUTB	Catalog Nbr: 0305			
2022 SPRG	Primary	Lynne Ausman	lynne.ausman@tufts.edu	
<p>Students will continue the exploration of the fundamental roles of nutrients in biological systems and the implications of micronutrient biological functions on food and nutrition policy. As with NUTB 205, emphasis will be on the function of nutrients as defined by their chemistry, interrelations among nutrient functions, mechanistic approaches in the analysis of nutrient-disease relationships, and recent advances in the basic sciences related to nutrition and nutrient function. This is the second of a two-course sequence (NUTB 205 and NUTB 305; these courses may be taken in either order). Prerequisites: general chemistry, organic chemistry, biochemistry, physiology (mammalian biology), and nutrition.</p>				

139457	Global Nutrition Programs			
Subject: NUTB	Catalog Nbr: 0227			
2022 SPRG	Primary	Sujata Dixit-Joshi	Sujata.Dixit_Joshi@tufts.edu	
<p>The goal of this course is to expose students to major global nutrition programs and strategies designed to lessen the global burden of nutrition related morbidity and mortality. Both prevention and treatment options for major nutrition related disorders that dominate contemporary populations will be discussed. This course will cover: a) current debates in the cause, prevention and treatment of global nutrition challenges, b) the range of options for interventions that exist, and actually implemented, c) the strength of the evidence base underpinning actions, d) approaches to problem assessment, (including the process of considering alternatives according to context), e) examples of successful nutrition interventions, f) constraints to success (what makes or breaks major program successes), and g) key global organizations involved in nutrition policy and programming. Each session will seek to cover: a) main problems still needing to be resolved; b) priority/target populations; c) interventions used/not used. Students will examine solutions at the local, national, and international level, including policy impact on programs, public health interventions, and public health practices. Prerequisite: One semester nutritional biochemistry and one Policy course.</p>				

139458	Theories of Behavior Change			
Subject: NUTB	Catalog Nbr: 0211			
2022 SUMR	Primary	Larissa Calancie	Larissa.Calancie@tufts.edu	
<p>This course explores the theories of behavior change most commonly used in nutrition and public health. Includes an examination of several individual-based, social-based, organization-based and eco-social theories, including the Health Belief Model, the Theory of Planned Behavior, the Trans-theoretical Model, Decision-Making, Social Support, Social Learning Theory, and Diffusion of Innovations. Understanding and being able to apply these theories will help researchers and practitioners design program interventions based on psychological, biological, social, cultural and organizational frameworks. Pre-requisite: Nutrition.</p>				

139459	Interpreting Nutrition Evidence			
Subject:	Catalog Nbr:			

Course Bulletin

NUTC 0230

2022 SPRG

Primary

Lara Park

Lara.Park@tufts.edu

This course will familiarize students with the terms and tools required to navigate the scientific literature and dissect the components of nutrition research articles. The course covers literature searches, study designs, anatomy of a research paper, and common statistical terms. Through “hands-on” exercises, including a literature review and case studies of how nutrition-related scientific evidence is translated in press releases and social media, students will gain the skills required to translate and communicate this body of knowledge responsibly. Prerequisite: NUTC 0200: Foundations of Nutrition Science or NUTC 0202: Principles of Nutrition Science, or a prior course in general nutrition.

139468**Obesity and Energy Regulation**

Subject: Catalog Nbr:

NUTB 0242

This course is a perspective from the intersection of food and biology and will build upon principles of energy balance that were developed in Nutritional Biochemistry. In the first section, physiologic regulation of body weight and its dysregulation leading to obesity will be explored. The interaction between hormonal/neuroendocrine systems and dietary factors will be featured. In the second half of the course, lifestyle, pharmacologic and surgical approaches to obesity treatment as well as maintenance of lost weight will be presented. Prerequisite: Prior completion of a course in nutritional biochemistry of the macronutrients or its equivalent. This course is open only to students who are in the Master of Nutrition Science and Policy (MNSP) Degree Program.

139509**Systematic Reviews: Theory and Practice**

Subject: Catalog Nbr:

NUTR 0369

This course is designed to train students how to conduct a systematic literature review and how to report it in a research article suitable for an academic journal. This course combines classroom sessions with substantial individual or group work to create a systematic literature review plan. Students will be taught how to perform each step in a review and will then be expected to apply it to a topic of their choosing. They will get feedback at each stage in the process. The final deliverable for the course will be a protocol for a systematic literature review.

Both masters and doctoral students can use the course as an opportunity to become an expert on a particular topic of interest. Masters students can use the written review protocol as a writing sample when applying for employment after graduation and some students might eventually complete the systematic review and publish it in an academic journal. Doctoral students can use the literature review as the basis for dissertation letter of intent since conducting a systematic review is a good first step in developing a research proposal.

Several course sessions and labs will be devoted to mathematical meta-analysis concepts and procedures. The primary course objectives are to understand how to conduct a systematic literature search, how to critically evaluate the quality of each study selected for inclusion in the review and how to write up the review in a form suitable for submission to an academic journal.

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139588	Biology II: Cells, Genetics, Development and Physiology	
Subject:	CRBU	Catalog Nbr: BI108

139604	Directed Study			
Subject:	NUTR	Catalog Nbr:	0497	
	2020 Fall	Primary	Nicola McKeown	nicola.mckeown@tufts.edu
	2020 Fall	Primary	Andrew Greenberg	andrew.greenberg@tufts.edu
	2020 Fall	Primary	Dariush Mozaffarian	Dariush.Mozaffarian@tufts.edu
	2020 Fall	Primary	Jiantao Ma	Jiantao.Ma@tufts.edu
	2020 Fall	Primary	Kevin Cody	Kevin.Cody@tufts.edu
	2021 FALL	Primary	Erin Hennessy	erin.hennessy@tufts.edu
	2021 FALL	Primary	Sai Das	sai.das@tufts.edu
	2021 FALL	Primary	Erin Boyd	Erin.Boyd@tufts.edu
	2021 FALL	Primary	Sean Cash	Sean.Cash@tufts.edu
	2021 SPRG	Primary	David Hastings	david.hastings@tufts.edu
	2021 SPRG	Primary	Kelly Kane	Kelly.Kane@tufts.edu
	2021 SPRG	Primary	Kathrina Prelack	kprelack@tufts.edu
	2021 SUMR	Primary	Timothy Griffin	Timothy.Griffin@tufts.edu
	2022 SPRG	Primary	Christina Economos	christina.economos@tufts.edu
	2022 SPRG	Primary	Diane McKay	diane.mckay@tufts.edu
	2022 SPRG	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu
	2022 SPRG	Primary	Johanna Dwyer	johanna.dwyer@tufts.edu
	2022 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu
	2022 SPRG	Primary	Lynne Ausman	lynne.ausman@tufts.edu
	2022 SPRG	Primary	Haewook Han	Haewook.Han@tufts.edu
	2022 SPRG	Primary	Kyla Shea	Kyla.Shea@tufts.edu
	2022 SPRG	Primary	Erum Sattar	Erum.Sattar@tufts.edu
	2022 SPRG	Primary	Nadine Tassabehji	Nadine.Tassabehji@tufts.edu
	2022 SPRG	Primary	Paul Howe	Paul.Howe@tufts.edu

This Directed Study course is a three semester hour unit (SHUs) course with a Letter Grading Basis. This course is a mechanism for a student to receive academic credit for work completed under the tutelage of a Friedman faculty member sponsor. This is generally on a one-to-one basis with the student taking major responsibility for his/her progress. Research conducted in a laboratory during a Directed Study course project can be either problem-oriented or technique-based. Directed Study courses must be supervised by Friedman School appointed faculty. Students cannot independently enroll themselves in this course via SIS and must complete a Directed Study Proposal Form, obtain the Friedman Faculty Sponsor's approval, and approval of their Division Chair/Program Director, and submit the completed form to Friedman's Registrar in order to be manually enrolled in SIS. The deadline for submission of the Directed Study Proposal Form is the Add

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Deadline for the semester (refer to Friedman's Academic Calendar at: <https://nutrition.tufts.edu/students/registrar>). No more than 12 semester hour units (SHUs) may be applied for fulfillment of a Friedman degree and no more than 6 semester hour units (SHUs) may be taken with the same Friedman faculty member. Students may not use the mechanism of enrollment in a Directed Study course with a supervising Friedman faculty member in order to enroll in a course that is offered at a school that is not an approved cross-registration partner (no reciprocity) with the Friedman School. The Directed Study Proposal Form is available online at: <https://nutrition.tufts.edu/students/registrar/forms>.

139617	Developing Equitable, Inclusive Community Environments for Physical Activity				
	Subject:	Catalog Nbr:			
	NUTC	0212			
	2022 SUMR	Primary	Rebecca Boulos	Rebecca.Boulos@tufts.edu	
	2022 SUMR	Primary	Richard Fenton	Mark.Fenton@tufts.edu	
<p>In this course, we will discuss how policy, environmental and systems change interventions in support of physical activity have the potential to improve health equity for large segments of the population. Physical activity measurement, epidemiology, and recommended guidelines will be outlined, and the socio-ecological model will frame the evidence for systems-based approaches to population physical activity. Students will learn about key elements of the built environment that support routine activity, such as land use plans and zoning, and transportation networks and funding. Throughout, we will explore how inequitable distribution of these policies and infrastructures have adversely impacted disadvantaged segments of the population often based on race, age, disability, income, and other demographic factors, and how these may be remedied. When appropriate, policy approaches to improved nutrition will be included (e.g., land use practices to preserve farmland, local ordinances supporting urban agriculture or limiting fast food establishments). The result will be a broad understanding of the evidence- and best practice-based approaches to healthy and equitable community development.</p>					

139618	Assessing and Measuring the Impact of Humanitarian Aid				
	Subject:	Catalog Nbr:			
	NUTC	0302			
<p>Progress has been made on monitoring and evaluation of humanitarian programs, yet little has been achieved in the field of measuring and understanding the impact of aid, both short and long term; leading to limited evidence of the effectiveness of humanitarian aid. This problem relates to both the methodological challenges of measuring impact in complex, remote or insecure humanitarian contexts, and a set of institutional constraints that hinder organizational and personal learning. This course will explore problems of impact assessment for emergency operations and will provide training in some of the most promising methodologies of impact assessment, paying attention to participatory assessment methodologies. The course explains the trade-offs between 'hard' quantitative approaches and methods in humanitarian situations, and 'soft' qualitative approaches and methods, leading to understanding of the benefits of mixed methods for impact assessment. Through analysis of institutional constraints to impact assessment, the course provides guidance on ways to use evidence to influence policy and programming in humanitarian contexts.</p>					

139619	Master's Thesis				
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Course Bulletin

Subject: Catalog Nbr:

NUTB 0300

2022 SUMR

Primary

Lynne Ausman

lynne.ausman@tufts.edu

2022 SUMR

Primary

Mei Chung

Mei_Chun.chung@tufts.edu

This course is designed to train students how to conduct a literature review, how to summarize the information from the review, how to identify the gaps in the available information, and how to propose a study to fill one of the apparent gaps. This course combines classroom sessions, webinars, and individual synchronous tutorials with substantial individual work to create a proposal ready for submission for funding. Students will be taught how to perform each step and will be expected to apply it to a topic they have chosen for this one semester course. They will get feedback at each stage in the process. Faculty will oversee the selection, scope and mentoring for a thesis project. The final deliverable for the course will be a proposal for a research study. Students taking this course should have a familiarity with statistical test results reported in journal articles. Students taking this course should have already completed the first-year statistics courses, NUTB 0250 and NUTB 0350 or equivalent or permission of the instructor.

139620

Global Food and Nutrition Policy

Subject: Catalog Nbr:

NUTB 0206

2022 SUMR

Primary

Eileen Kennedy

Eileen.Kennedy@tufts.edu

The Global Food and Nutrition Policy course is designed to introduce students to US and global nutrition policy, to key players within the US and international/global landscape, current initiatives, debates and discussions in nutrition policy, typologies of policy initiatives, successful flagship interventions, successful dietary guidance systems and multi sector approaches to addressing food insecurity and nutrition. Prerequisite: NUTC/NUTR 0202: Principles of Nutrition Science or general nutrition equivalent or instructor consent.

139621

Management of Health and Nutrition NGO's

Subject: Catalog Nbr:

NUTB 0208

2021 SUMR

Primary

David Hastings

david.hastings@tufts.edu

Key concepts and principles for managing nutrition and health programs and organizations will be addressed to equip students to function as program directors and project managers. Case studies and readings will be used to convey a practical understanding of how to manage and coordinate business functions to achieve the goals and objectives of the organization. This course will deal with for-profit and nonprofit organizations. Topics will include business and project planning, management control systems, financial management, budgeting, performance measurement, pricing and marketing of services, operations management, cost analysis, human resource management, and the development of management information systems. The course is designed to provide students with practical tools.. The course is designed to develop an awareness of how each management function interacts and impacts the organization. Residencies will be comprised of lectures covering specialized topics, case discussions with student presentations, and journal discussions. Prerequisite: NUTC/NUTR 0202: Principles of Nutrition Science or general nutrition equivalent or instructor consent.

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139622	Advanced Medical Nutrition Therapy			
Subject: NUTB	Catalog Nbr: 0316			
2022 SUMR	Primary	Kelly Kane		Kelly.Kane@tufts.edu
2022 SUMR	Primary	Kathrina Prelack		kprelack@tufts.edu
<p>This course aims to expand student's knowledge on a variety of common pathophysiological conditions and integrate this knowledge with the intervention of clinical nutrition therapies. Students will learn about the basic elements of medical nutritional therapy. These include nutritional assessment, which incorporates the use of anthropometric, biochemical and clinical data to determine nutritional status. Particular emphasis is placed on understanding energy expenditure and body composition and their components, and how these may change during physiological stress or illness. Students then learn about enteral and parenteral nutrition and fundamental aspects of nutrition support. These core elements are then applied in the study of various disease states and clinical nutrition therapy. Students also have the opportunity to explore diet and disease in an approved area of their interest through written and oral presentation. Prerequisite courses: Nutrition Science, General Chemistry, Organic Chemistry, Biochemistry, Human Biology or Physiology.</p>				

139777	Principles of Nutrition Science			
Subject: NUTC	Catalog Nbr: 0202			
2022 SUMR	Primary	Diane McKay		diane.mckay@tufts.edu
<p>This course presents the fundamental scientific principles of human nutrition. Students will become familiar with food sources; recommended intake levels; biochemical role; mode of absorption, transport, excretion; deficiency/toxicity symptoms, and potential major public health problems for each macro- and micronutrient. The student goals for this course are: 1) to describe the components of a healthy diet, 2) understand the major nutrition problems that affect individuals and populations from conception and throughout the life cycle, and 3) understand the scientific basis for nutritional recommendations brought before the scientific and lay communities. Prerequisites: Students are required to have taken a one semester college-level course in either human biology, chemistry, or physiology (preferred).</p>				

139834	Theories of Behavior Change and Positive Deviance			
Subject: NUTC	Catalog Nbr: 0213			
<p>How do you achieve behavior change in challenging circumstances? This course explores that question by examining theories of behavior change commonly used in nutrition and public health and introducing the Positive Deviance (PD) Approach. In the first half, several individual-, social-, and organization based theories will be explored, with an emphasis on understanding core concepts and measurement issues. The second half will build on this base and cover the theory, history and application of PD. Students will develop their own problem statement and map out the steps required to apply the PD approach to their identified problem. Interactive activities and assignments will teach students when to apply each of the behavior change methods.</p>				

Course Bulletin

139852	Epidemiology for Nutrition Professionals			
Subject: NUTB	Catalog Nbr: 0204			
2022 SPRG	Primary	Silvina Choumenkovitch	silvina.choumenkovitch@tufts.edu	
2022 SPRG	Primary	Gitanjali Singh	Gitanjali.Singh@tufts.edu	
<p>This course covers basic epidemiologic concepts and methods and introduces students to techniques, including dietary assessment methods, which are used in human nutrition research. Students will learn to calculate and interpret basic measures of disease frequency and measures of effect, will be introduced to methods for recognizing and addressing sources of error in human studies, and will learn the basics of study design and implementation for nutrition research. Prerequisite: Prior completion of NUTB 0250: Statistical Methods for Health Professionals I or equivalent or undergraduate Biostatistics.</p>				

139853	Monitoring and Evaluation of Nutrition and Food Security Programs			
Subject: NUTB	Catalog Nbr: 0210			
<p>Inadequate project monitoring and evaluation (M&E) represent a major constraint in domestic and international programmatic efforts to address problems of malnutrition. The absence of sound M&E processes in large numbers of nutrition projects, despite continued evidence of their value in assessing and improving project performance, suggests that many project planners and managers may not yet have the necessary skills or understanding to develop and operate such systems. In this course students will become familiar with the strategies and techniques for monitoring and evaluating projects, particularly those related to nutrition and food security. They will be exposed to multiple domestic and international examples of monitoring and evaluation systems. Students will gain experience in the design of regional monitoring and evaluation plans and be able to assess the adequacy of proposals and program evaluations designed by others. This course is open only to students who are in the Master of Nutrition Science and Policy (MNSP) Degree Program.</p>				

139854	Nutrition, Brain and Behavior			
Subject: NUTB	Catalog Nbr: 0243			
2021 FALL	Primary	Grace Giles	Grace.Giles@tufts.edu	
<p>During the past two decades there has been an increasing awareness of the interaction between nutrition and behavior. To examine this interaction, two general themes will be pursued. First, we will investigate the effects of nutritional variables on brain functioning and behavior. Second, we will study the influence of psychological variables in determining food intake and nutritional status. Examples of topics to be covered includes: the effects of protein- caloric malnutrition on brain development and intellectual functioning; obesity and other eating disorders; food additives and behavior; the role of brain mechanisms in determining nutritional intake; food choice; food as an addiction; and the importance of vitamins and minerals for behavioral functioning. Prerequisite: Nutritional biochemistry or permission from MNSP Program Director.</p>				

139855	Nutrition and Aging			
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Subject: Catalog Nbr:
NUTB 0241

This course will address the impact of nutrition on aging and the impact of aging on nutrient needs. The worldwide population is experiencing a dramatic increase in the number of elderly, due to socioeconomic improvements, and advances in science, technology, medicine and nutrition. It is of primary importance to determine both the nutritional needs of the elderly and to adequately determine long-term nutrient needs that will prevent or ameliorate nutrition-related chronic diseases. Topics will include changes in body composition and their adverse effects such as frailty and sarcopenia, controversies about healthy weights for older adults, roles of micronutrients in ameliorating age-related deterioration in bone health and immune function, and therapies that may prevent cognitive decline. Approaches to maximizing healthy aging from physiological and sociologic aspects of these problems will be presented.

139856**Food Science Fundamentals**

Subject: Catalog Nbr:
NUTB 0219

2020 Fall

Primary

Lynne Ausman

lynne.ausman@tufts.edu

The foundation of knowledge for any nutrition professional is a thorough understanding the nutritional components of food and foodborne pathogens that are linked with disease and issues affecting food safety. Students will become adept with the basic groups of foods in the food supply and their nutrient profiles, their harvesting, processing and storage procedures and policies. The course will provide students a broad overview of certain aspects of the food supply both locally and worldwide and will examine issues affecting food safety including some of the mechanisms by which foodborne pathogens that cause disease in humans, as well as the human consequences of infection by major foodborne pathogens such as E. coli O157:H7, Campylobacter and Listeria. Pre-requisite: NUTC 0202/NUTR 0202: Principles of Nutrition Science or equivalent.

140094**Sustainability on the Farm**

Subject: Catalog Nbr:
NUTC 0261

2020 Fall

Primary

Timothy Griffin

Timothy.Griffin@tufts.edu

2021 FALL

Primary

Kevin Cody

Kevin.Cody@tufts.edu

Agriculture is the single largest user of land and water and, thus, has broad environmental impacts. Gains in yield productivity over the last five decades have met increasing demands without increasing agricultural area in the U.S., but environmental, economic and social costs have been considerable. In this first course of the series, the farm level primary costs and benefits will be analyzed, along with a profile of current conventional and alternative approaches to food production in the U.S. Students will examine the policy response to environmental and conservation concerns, focusing on the balance between meeting increased demand while mitigating environmental and social costs. Prerequisites: Graduate standing or instructor consent.

140108**Biology of Muscle Wellness & Disease**

Subject: Catalog Nbr:
CRBU HS560

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140148	Introduction to Epidemiology
Subject: CRBU	Catalog Nbr: 0713

140163	Principles of General Chemistry
Subject: CRBU	Catalog Nbr: CAS171

140373	Sustainable Food Systems and Markets		
Subject: NUTC	Catalog Nbr: 0262		
2022 SPRG	Primary	Natalie Valpiani	Natalie.Valpiani@tufts.edu
2022 SPRG	Primary	Robert Guillemin	Robert.Guillemin@tufts.edu
<p>Food businesses (the companies that process, manufacture, distribute, serve, and sell food) transform the very nature of what we eat and establish the economic, social and environmental terms that shape much of the food system. This course examines the dominant food system, exploring its undesirable outcomes and the emerging opportunities to feed a growing population in a manner that is reliable, equitable, healthy, and sustainable. Students will learn about industry-led initiatives that attempt to balance the drive for profits with their social and environmental goals. We will also explore how governments, nonprofit organizations, and communities are trying to reshape the food system. To provide context, the course reviews such topics as food system policy, environmental impacts, nutrition, public health, and food equity.</p>			

140392	Mass Spectrometry, Proteomics, & Functional Genomics
Subject: CRBU	Catalog Nbr: BI793

140478	Environmentally Sustainable Development
Subject: CRBU	Catalog Nbr: CAS304
Environmentally Sustainable Development	

140483	Social Networks in Strategic Communication Planning
Subject:	Catalog Nbr:

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CRBU 0737
Social Networks in Strategic Communication Planning

140493	Biological Database Systems
Subject: Catalog Nbr: CRBU BF768	
Biological Database Systems	

140539	Fundamentals of Writing About Nutrition and Health
Subject: Catalog Nbr: NUTR 0220	
2022 FALL Primary Christine Smith	Christine.Smith@tufts.edu
<p>This introductory course is designed to teach the basic skills necessary to write nutrition- and health-related papers that are clear, accurate, and audience-appropriate. It is a practical review of grammar, writing, and revision, and will enable students to develop a clear, fluent, and readable style. The course will include both individual and collaborative exercises and will require several writing and editing assignments. Designated time outside of the classroom is required for each student to participate in asynchronous activities such as recorded lectures, self-assessments, and video conferences. NUTR 220 is a prerequisite for NUTR 306. Enrollment limited to 20 students. NOTE: NUTR 220 may not be taken concurrently with NUTR 306. Prerequisite: Graduate standing or instructor consent.</p>	

140639	Sustainability and the Food Consumer
Subject: Catalog Nbr: NUTC 0263	
2022 SUMR Primary Sean Cash	Sean.Cash@tufts.edu
<p>Every day, we make numerous choices about what to eat - and what not to eat. How do consumers and households make these choices, and how can the environments in which we make these choices be shaped to enhance sustainability without sacrificing our health or enjoyment of food? In this course we draw upon insights from economics, psychology, marketing, and nutrition to explore topics such as current food consumption patterns, determinants of food choice, the role of food labeling and market-based initiatives in enhancing sustainability, and the impact of regulation and "nudges" on consumer behavior around food.</p>	

140640	Human Physiology
Subject: Catalog Nbr: NUTC 0268	
<p>This course will introduce the functions of mammalian organisms as we understand them at various levels of organization - organ system, organ, cellular and subcellular levels. Our goal is to provide a broad overview of the fundamental properties and regulation of these systems so that the student can understand and relate this material to that learned in other nutrition science courses. This course will cover topics that are based upon biological and chemical concepts; however, no prior background in science is required. This course does</p>	

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not fulfill the degree requirement for NUTR 208.

140715	Muscle Biology in Health & Disease
Subject: CRBU	Catalog Nbr: SAR560
Muscle Biology in Health & Disease	

140813	Consumer Insights
Subject: CRBU	Catalog Nbr: MK856
Consumer Insights	

140824	Food Justice: Critical Approaches in Policy and Planning
Subject: NUTR	Catalog Nbr: 0285
2021 FALL	Primary
Julian Agyeman	julian.agyeman@tufts.edu
<p>This class offers students different lenses, such as critical race theory to see how the intersectionality of race, class, gender, sexuality, ability and citizenship play out in the development of systemic structural and socio-spatial inequities and injustices in food systems. It develops an understanding and contextualization of the role of food justice activism within the broader narrative of the alternative food movement and offers emerging ideas about how policymakers and planners can take a role in increasing food justice beyond the more mainstream and ultimately contested notions of what is 'local' and 'sustainable.' The course will help participants chart their role(s) in advocating for 'just sustainability' as a defining factor in becoming food systems planners and policymakers. Prerequisite: Graduate standing or instructor consent. This course is cross-listed with UEP 0285. Course textbook: https://mitpress.mit.edu/books/cultivating-food-justice.</p>	

140905	Biostatistics I
Subject: NUTR	Catalog Nbr: 0206
2022 FALL	Primary
Angie Rodday	Angie.Rodday@tufts.edu
<p>This course introduces basic principles and applications of statistics to problems in clinical research. Topics covered include descriptive statistics, probability and random variation, sampling, hypothesis testing, proportions, measures of frequency, t-tests, chi-square tests, one-way analysis of variance, correlation, linear regression and nonparametric statistics. This course has a required Laboratory (NUTR 0206.1L) linked to the NUTR 0206.01 course. NOTE: Students cannot receive semester hour units for both NUTR 206: Biostatistics I and its counterpart NUTR 207: Statistical Methods of Nutrition Science and Policy. Prerequisites: Graduate standing or instructor consent.</p>	

141051	Gender and Human Security in Transitional States and Societies
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Course Bulletin

Subject:	Catalog Nbr:				
NUTR	0242				
2021 SPRG	Primary	Dyan Mazurana			Dyan.Mazurana@tufts.edu
<p>This course uses gender as a key analytical tool to examine states and societies transitioning from armed conflict or other large-scale social and political upheaval. It explores key gender dimensions of such transitions and their implications for states, societies, and citizens, including those that have moved toward more democratic forms of governance and those that transitioned (or appear to be transitioning) into more authoritarian or fundamentalist regimes. The course will balance a population-focused approach (examining the evolving roles, expectations, norms and positions for both men and women, and to a lesser extent boys and girls) with an analysis of the health, humanitarian, development security, and justice/legal sectors. Prerequisite: Graduate standing and instructor consent.</p>					

141052	Forced Migration				
Subject:	Catalog Nbr:				
NUTR	0243				
2021 SPRG	Primary	Karen Jacobsen			karen.jacobsen@tufts.edu
<p>This course is an introduction and overview of issues in forced migration, and how humanitarian and human security issues are related to displacement. The course provides an overview of the scale, scope and causes of global displacement, theories of forced migration, the impact of forced displacement on food security, livelihoods and protection, and the ways in which displaced people, governments and the international humanitarian system have responded, at the international, national and community levels. Prerequisite: Graduate standing and instructor consent.</p>					

141063	Introduction to SAS Programming				
Subject:	Catalog Nbr:				
NUTR	0237				
2022 FALL	Primary	Gail Rogers			gail.rogers@tufts.edu
<p>This half-semester course will provide students with sufficient knowledge of how to obtain, manage, clean and prepare data in SAS for Windows. Emphasis will be placed on the basics of SAS programming and data manipulation. Upon completion, students should be able to use data in SAS and be familiar with the procedure steps required to import and export data, create SAS data sets, produce descriptive statistics, and clean and transform data in preparation for statistical analyses. In-class exercises and weekly homework assignments will allow students to acquire hands-on experience solving common SAS programming tasks. Important to Note: This course is designed for students with no SAS programming experience. Students with a basic knowledge of SAS should not take this course. Course requirement for NEDS students (priority enrollment). Prerequisite: Graduate standing or instructor consent. Meets first half of fall semester.</p>					

141108	Nutrition, Health, and Disease I: Pregnancy to Adolescence				
Subject:	Catalog Nbr:				
NUTC	0269				
2022 SPRG	Primary	Kelly Kane			Kelly.Kane@tufts.edu
2022 SPRG	Primary	Kathrina Prelack			kprelack@tufts.edu

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This course examines the relationship between nutrition, health, and chronic disease spanning from pregnancy through the different stages of childhood. Energy and nutrient requirements to support pregnancy and lactation, as well as common nutrition related concerns during this life stage are addressed. Topics in pediatric nutrition encompass nutrient needs during infancy with an in depth focus on growth assessment and use of standard growth and special needs of preterm and full term infants. The course identifies specific nutrient requirements at the various phases of growth and development, as well as feeding practices and eating behaviors that accompany each stage. Medical nutrition therapy associated with common nutritional disorders of children with developmental disability, chronic disease, and obesity is introduced. Given the increased health risks associated with obesity, a comprehensive review of nutrition screening, diet therapy, and clinician based education of parents and children at various age groups is provided. Pre-requisite: NUTC 202: Principles of Nutrition Science, or an equivalent course.

141110	Genetic Epidemiology
Subject: CRHA	Catalog Nbr: EPI507
Genetic Epidemiology	

141124	Computational Biology: Genomes, Networks, Evolution
Subject: CRBU	Catalog Nbr: BE562
Computational Biology: Genomes, Networks, Evolution	

141193	Trending Insights: Social Media Analysis and Visualization
Subject: CRBU	Catalog Nbr: 0747
Trending Insights: Social Media Analysis and Visualization	

141194	Environmental Health Science, Policy and Law
Subject: CRBU	Catalog Nbr: EH805
Environmental Health Science, Policy and Law	

141195	Nutrition and Disease Prevention: A Life Course Approach
Subject: CRBU	Catalog Nbr: HS742
Nutrition and Disease Prevention: A Life Course Approach	

141196	Food and Security
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Subject:	Catalog Nbr:
CRBU	ML712
Food and Security	

141197	Biological Database Analysis
Subject:	Catalog Nbr:
CRBU	BF768
Biological Database Analysis	

141208	Social Media Marketing
Subject:	Catalog Nbr:
CRBU	MK845
Social Media Marketing	

141379	Nutrition, Health, and Disease II: Adulthood		
Subject:	Catalog Nbr:		
NUTC	0270		
2022 SUMR	Primary	Kelly Kane	Kelly.Kane@tufts.edu
2022 SUMR	Primary	Kathrina Prelack	kprelack@tufts.edu
<p>This course covers basic epidemiologic methods and concepts, including study design, calculation and interpretation of basic measures of disease frequency and measures of effect, sources of inaccuracy in experimental and observational studies, causal inference, and an introduction to the statistical evaluation and interpretation of epidemiological data. Students will discuss past and recent publications in order to apply their understanding of abstract concepts and specific quantitative methods to the interpretation and critique of published work. Pre-requisite: NUTC 0202: Principles of Nutrition Science or an equivalent course.</p>			

141462	Grant Writing		
Subject:	Catalog Nbr:		
NUTR	0400		
2021 SUMR	Primary	Christina Economos	christina.economos@tufts.edu
<p>Students will receive didactic training on the principles of the grant writing process. Students will be required to write specific aims for a grant proposal on a topic of the instructor's choosing. A class on writing skills will help students form a clear and concise series of specific aims. A class on available citation databases and reference management techniques will guide students on effective literature searches and management of citations. The entire class will critique each set of specific aims in an interactive session. Thereafter, the student, working with his/her advisor if possible, will devise and write a research grant proposal using the format described below. During this time lectures will focus on specific topics relevant to grant writing. All will be encouraged to seek one-on-one assistance from participating statisticians while formulating the initial experimental design. Designated time outside of the classroom is required for each student to write a grant. The final grant will then be distributed to the entire class with advance time for the advisor, course</p>			

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instructors, and students to have time to read each grant, give feedback, and prepare questions. During the final weeks of the course, each student will defend their grant proposal in front of the class. Each student will be expected to explain to the class the formulated research question and the specific aims, and respond to questions and comments from the advisor, course instructors and other students. Throughout the course, case studies on responsible ethical conduct in research, including responsible peer-review, will be discussed to facilitate the student's development of ethical reasoning in research. Pre-Requisites: Enrolled in a doctoral program or by permission from course instructor.

141586	MAHA Capstone Project			
Subject: NUTR	Catalog Nbr: 0299			
	2021 SPRG	Primary	Gregory Gottlieb	Gregory.Gottlieb@tufts.edu
	2022 FALL	Primary	Dyan Mazurana	Dyan.Mazurana@tufts.edu
	2022 FALL	Primary	Daniel Maxwell	Daniel.Maxwell@tufts.edu
	2022 SPRG	Primary	Elizabeth Stites	elizabeth.stites@tufts.edu
<p>All MAHA students must present an Oral and Written MAHA Capstone Project to fulfill the MAHA Capstone Project degree requirement. The MAHA Capstone Project (only available for MAHA students; enroll in NUTR 0299 via SIS for spring semester) is a unique opportunity for students to work long and hard—longer than one usually can in professional life, and with more intellectual freedom and rigor—on an issue that they are passionate about. Students draw on their learning at Tufts and previous humanitarian experiences to develop this comprehensive written study. The specific format of the final product is flexible to allow students to achieve their pedagogical aims for the study. Each student is matched with a MAHA Capstone Project faculty advisor who will help guide them through the process.</p>				

141610	Scientific Basis of Nutrition: Micronutrients			
Subject: NUTR	Catalog Nbr: 0245			
	2022 FALL	Primary	Edward Saltzman	edward.saltzman@tufts.edu
<p>NUTR 245 is one course of a pair of courses designed to provide students with an in-depth understanding of nutrition and its scientific underpinnings. NUTR 245 focuses on micronutrients, including fat- and water-soluble vitamins and minerals. The second course of the sequence, NUTR 246, focuses on macronutrients and energy. The course will cover micronutrient sources; digestion and absorption; bioavailability; homeostasis; functions throughout the lifecycle including roles in promotion of health and prevention of disease; and deficiency and toxicity states. Additional concepts will include micronutrient fortification, dietary supplements as sources of micronutrients, gene-diet interactions, and the social determinants of micronutrient nutrition and their implications. Prerequisites: Undergraduate chemistry and biology, or by instructor permission, and graduate standing or instructor consent.</p>				

141611	Scientific Basis of Nutrition: Macronutrients			
Subject: NUTR	Catalog Nbr: 0246			
	2021 SPRG	Primary	Lara Park	Lara.Park@tufts.edu

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2022 SPRG	Primary	Edward Saltzman	edward.saltzman@tufts.edu
<p>NUTR 246 is one course of a pair of courses (with NUTR 245) designed to provide students with an in-depth understanding of nutrition and its scientific underpinnings. NUTR 246 focuses on macronutrients and energy, and will cover topics related to energy metabolism, carbohydrates and fiber, lipids and lipoproteins, and amino acids and proteins while NUTR 245 focuses on micronutrients including fat- and water-soluble vitamins and minerals. The course has been designed to review and build upon students' existing knowledge of biology and chemistry, and will provide instruction in biochemical and physiologic principles necessary to understand the aspects of macronutrients described above. The focus of the course will be on the scientific basis for and real-world application of macronutrients and energy. The course is divided into 4 sections in 3-week cycles: energy/energy metabolism, carbohydrates and fiber, lipids and lipoproteins, amino acids and proteins. Each section will address five major questions: what, where, why, when, and how. For example, What is a carbohydrate? What is its function? Where do I obtain carbohydrates (food sources)? Why does my body need carbohydrates? When do my needs change (across the lifecourse)? How does my body digest/absorb/metabolize carbohydrates? Prerequisite: Undergraduate-level biology and chemistry, or by instructor consent.</p>			

141612	Advanced Data Analysis		
Subject:	Catalog Nbr:		
NUTR	0394		
2022 FALL	Primary	Elena Naumova	elena.naumova@tufts.edu
<p>This project-based course capitalizes on student interests to formulate research questions with understanding of data limitations, conduct multi staged data analysis, and select proper data visualization and graphical representation tools. Students will learn advanced modern analytical tools and techniques essential for analysis in a variety of disciplines such as Climate, Environment, Nutrition and Health applications (knowledge of only one of these disciplines). This course also covers research design, the scientific method, data quality and validity, data management, and research ethics in data analysis. Students should attempt to identify data sets relevant to their specific interests prior to the course. Instructor will approve data set suitability. If students cannot identify appropriate datasets, the instructor will provide a dataset. Designated time outside of the classroom is required for each student to work with the team partner to provide and receive feedback on homework assignments. Prerequisites: Students should have basic working knowledge of statistical methods in environmental and/or nutrition research and epidemiology. Recommended courses that cover those topics include: Biostatistics I and II (NUTR 0206/0309) or Statistical Methods in Nutrition Research and Regression Analysis for Nutrition Policy (NUTR 0207/NUTR 0307) or equivalent. Ability to analyze data by use of R is preferable, but students may utilize other statistical programs as long as those programs are sufficient for the analysis that is proposed. Lab/technical sessions conducted on Thursdays.</p>			

141649	Food Writing		
Subject:	Catalog Nbr:		
CRBU	ML681		

141654	Corporate Social Responsibility Marketing		
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Subject:	Catalog Nbr:
CRBU	MK867

141665	Fundamentals of Nonprofit Management
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Subject:	Catalog Nbr:
CRBU	OB841

Fundamentals of Nonprofit Management

141666	Financial Management
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Subject:	Catalog Nbr:
CRBU	FE722

Financial Management

141667	Global Supply Chains
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Subject:	Catalog Nbr:
CRBU	AD680

Global Supply Chains

141720	Social Media for Health and Nutrition Communication
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Subject:	Catalog Nbr:
NUTR	0213

2022 FALL	Primary	Marisa Hastie	Marisa.Hastie@tufts.edu
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In this course we will examine the diverse uses of social media in the current health and nutrition field and develop a framework for students to apply for future social media usage in professional endeavors. Attention will be paid to the critical analysis of the appropriateness, potential target populations, communication and health behavior strategies, the risks and benefits, and the overall intended outcomes and reach of social media communication. In small groups, students will ultimately design, implement, and develop evaluation tools for a social media campaign/initiative of their choosing. Enrollment limited to 20 students. Priority enrollment is given to: 1) Nutrition Interventions, Communication, and Behavior Change (NICBC) students; 2) Second-year students; 3) Students that need the course for their specialization.

141784	Nutrition and Entrepreneurship
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Subject:	Catalog Nbr:
NUTR	0280

2022 SPRG	Primary	James Edgerton	Jimmy.Edgerton@tufts.edu
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This course is designed to introduce students to the theory and practice of entrepreneurship. Entrepreneurial theory and practice relevant to the nutrition/food space will be discussed from the perspectives of a stand-alone start-up company and within larger organizations. This course is designed for students interested

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in exploring how entrepreneurship can be incorporated into food and nutrition and who may wish to begin to build an entrepreneurial skill set. Course topics will include ideation, finding potential investors, pitch development and pitching skills, competitive analysis, market sizing, business plan development, basic entrepreneurial finance and legal issues, entrepreneurial ethics, and management skills needed to run an entrepreneurial venture. Final products of the course will be a pitch presentation and a written business plan. Prerequisite: Graduate standing or instructor consent.

141821	Food Writing Media
Subject: CRBU	Catalog Nbr: ML681
Food Writing Media	

141823	Fundamentals of Non-Profit Management
Subject: CRBU	Catalog Nbr: OB841
Fundamentals of Non-Profit Management	

141855	Basic Neurosciences
Subject: CRBU	Catalog Nbr: BN777
Basic Neurosciences	

141867	Applied Genetic Analysis
Subject: CRBU	Catalog Nbr: BS859
Applied Genetic Analysis	

141868	Theory of Social Policy and Change
Subject: CRBR	Catalog Nbr: HS508
Theory of Social Policy and Change	

141958	Hot Topics and Controversies in Nutrition
Subject: NUTR	Catalog Nbr: 0286
Virtually no topic attracts more public attention or generates more controversies than nutrition. In this intensive week-long course, the scientific underpinnings of several hot topics and controversies will be explored. Topics will include exploration of popular diets (e.g., low glycemic index and the Paleo diet), dietary	

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gluten, FODMAPS, the relationship between saturated fat and heart disease, and use of dietary supplements. For each topic, participants will learn why the topic is hot or controversial, and will gain an appreciation of the current state of scientific evidence as well as gaps in knowledge. The class will engage in debates and group discussions designed to illuminate perspectives of consumers, nutrition professionals and health care providers. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. No prerequisites. Community and Alumni Discounts are not available for this course.

141959	A Complex Systems Approach to Healthcare and Its Impact on Diet and Nutrition
Subject: NUTR	Catalog Nbr: 0287
<p>Understanding healthcare systems is key to recognizing the role of nutrition in healthcare. Healthcare-related issues, such as the nature of healthcare systems, the social determinants of health, shifting demographics and the challenges of healthcare access are multiple, complex and they represent one of the greatest challenges of our time. This course will employ a complex system perspective to cover topics like healthcare policy, healthcare systems design and the essentials of healthcare management from a wide range of models, cultures and settings. From this perspective, the evolving relationships between patients, physicians, hospitals, insurers, employers, communities, and government will be explored. The role of nutrition science and nutrition delivery will also be examined within this framework. The intensive one-week course will call for the active participation of all class members through engagement in individual and group activities, debates and discussions. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. No prerequisites. Community and Alumni Discounts are not available for this course.</p>	

141960	Global Diet and Cardiometabolic Risk
Subject: NUTR	Catalog Nbr: 0288
<p>Diets around the world are undergoing a rapid transition, resulting in increased risk for many chronic diseases. This course is designed for a broad range of students who are interested in understanding the impact of diet on obesity, cardiovascular disease (CVD), and diabetes around the world. Participants will gain knowledge of global trends in dietary and cardiometabolic risk factors and will be introduced to methods that are used to learn to estimate disease burden that can be attributed to diet. Course participants will also be introduced to how effective population-based interventions to reduce the burden of cardiometabolic diseases through nutrition are developed and tested. This course is suitable for all students who are interested in global nutrition and health, and especially for those who are interested in the translation of epidemiologic evidence into public health policy. Students will be assigned reading to be completed in advance of the course. Students will complete daily assignments and a final project that will be due after completion of the week-long course. Prerequisite: NUTR 0204: Principles of Epidemiology or course equivalent or instructor consent. Community and Alumni Discounts are not available for this course.</p>	

141961	Nutrition and Entrepreneurship
Subject:	Catalog Nbr:

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NUTR 0289

This course is designed to introduce students to the theory and practice of entrepreneurship that is relevant to the nutrition and food. The didactic component of this course focuses on fundamentals of entrepreneurship. Application to nutrition and food will be developed during in-class activities such as discussions, by student pitch presentations, and by pitch presentation feedback from students and instructors. This course is designed for students interested in exploring how entrepreneurship can be incorporated into food and nutrition and who may wish to begin to build an entrepreneurial skill set. No pre-requisites or professional experience is required. Community and Alumni Discounts are not available for this course.

141962

Intermediate and Advanced Data Analysis Retreat

Subject: Catalog Nbr:
NUTR 0290

The Intermediate and Advanced Data Analysis Retreat (IADAR) is a five-day intensive intended for students seeking statistical support analyzing research data. Lecture topics include Preparing Data Analysis Plan, Preparing Data for Analysis, Data Visualization, Characterization of Distributions, Correlation Measures, Trend Analysis, Modeling and Diagnostics, Elements of Spatial Data Analysis, and Writing Methods and Results. IADAR will provide students with resources to support their research, including individualized paper outline, code examples in R and Stata, labs, readings, as well as open work sessions with instructors and faculty for specific data analysis questions. This course is suitable for a wide variety of young professionals engaged in independent study or advanced research, from upper-level undergraduates to post-doctoral students from any discipline or department. Community and Alumni Discounts are not available for this course.

142095

Pathophysiology of Human Disease

Subject: Catalog Nbr:
NUTR EH208

Pathophysiology of Human Disease

142096

Pathophysiology Human Disease

Subject: Catalog Nbr:
CRHA EH208

Pathophysiology Human Disease

142097

Advanced Topics in Obesity Epidemiology and Prevention

Subject: Catalog Nbr:
CRHA ID541

Advanced Topics in Obesity Epidemiology and Prevention

142098

Explaining Health Behavior: Insights from Behavioral Economics

Subject: Catalog Nbr:

Course Bulletin

CRHA	SBS503
Explaining Health Behavior: Insights from Behavioral Economics	

142100	Strategic Logistics Management
Subject: CRBU	Catalog Nbr: AD690
Strategic Logistics Management	

142384	Food Marketing
Subject: CRBU	Catalog Nbr: M565
Food Marketing	

142517	Nutrition and Innovation
Subject: NUTC	Catalog Nbr: 0280
2021 FALL	Primary
Barbara Lyle	Barbara.Lyle@tufts.edu
<p>Have you ever thought: “This would be a great idea for a new nutrition product or service?” but didn’t get very far in pitching the idea to others? In this class you will develop skills for identifying and advocating solutions to important consumer needs through case studies, team discussions, and real-life assignments. You’ll gain experience cultivating an innovator’s mindset in order to effectively understand real consumer needs, identify, improve and prioritize solutions, and take your idea pitching skills to a new level. What you learn in this course applies to those engaged in industry as well as more broadly in the health field, including public and community health. Pre-requisite: Graduate standing or instructor consent.</p>	

142657	The Art and Science of Verbal Communication
Subject: NUTR	Catalog Nbr: 0300
<p>This course is intended to turn you into a more persuasive and effective public speaker – someone who speaks with the ease, confidence, clarity, and modes of persuasion that are critical in today’s health science, nonprofit, policy and business worlds. We will cover a range of speaking scenarios, including presentations, impromptu and prepared podium speeches, as well as simulations of a press conference or media interview on camera. The course helps you develop your own personal style by deepening your understanding of the persuasive tools, recommendations, refutations, modes of analysis, and variations in audiences that motivate listeners to turn business, policy and diplomacy ideas into action. Priority enrollment for NICBC students. Meets the first half of the fall semester.</p>	

142739	Elementary Mathematics for Economics
Subject:	Catalog Nbr:

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CRBU	0505
Elementary Mathematics for Economics	

142881	Eco Epi Cntl of Impt Parasit Dis
Subject: CRHA	Catalog Nbr: IID201
Eco Epi Cntl of Imp tParasit Dis	

142882	Health Literacy: Measuring Acc
Subject: CRHA	Catalog Nbr: SBS515
Health Literacy: Measuring Acc	

142883	History of Food
Subject: CRBU	Catalog Nbr: 0880
History of Food	

142901	Basics of U.S. Public Policy
Subject: NUTR	Catalog Nbr: 0234
<p>This course introduces students to the U.S. public policymaking process from our Constitution, through the three branches of government, to the press, with emphasis on food and nutrition policies and programs. Much of the course focuses on the nuts and bolts of policymaking and will utilize examples from current policy debates. Case studies, developed for the diverse interests of Friedman School students, are used to underscore policy lessons, facilitate small group discussion, and introduce students to several policy initiatives (e.g., food labeling) with which all Friedman students need to be familiar. Priority enrollment: MS/DI and NICBC students. Prerequisite: Graduate student or instructor consent.</p>	

142902	Social Psychology of Eating Behavior
Subject: NUTR	Catalog Nbr: 0273
2022 SPRG	Primary
Keri Carvalho	Keri.Carvalho@tufts.edu
<p>This project aims to develop a course that uses innovation techniques from the technology industry to generate intensive problem-solving experiences that result in transformational learning experiences. Students will participant in a Hackathon and complete an Innovation Time Off project geared toward public health issues (e.g., obesity, health care access). The course covers classic and new Social Psychological phenomenon applied to public health nutrition issues. After taking the course, students should be able to summarize key phenomena and generate insights about a particular nutrition problem of interest. Prerequisite:</p>	

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Recommended: NUTR 0211: Theories of Behavior Change and Their Application in Nutrition and Public Health Interventions or NUTB 0211: Theories of Behavior Change, and graduate standing or instructor consent.

142903	Science of Food
Subject: CRBU	Catalog Nbr: 0619

142904	Statistical Genetics I
Subject: CRBU	Catalog Nbr: 0858

142905	Fnd Nonprof Mgmt
Subject: CRBU	Catalog Nbr: 0841

142906	Mktg Social Chg
Subject: CRBU	Catalog Nbr: 0867

142907	Food Wrtg Media
Subject: CRBU	Catalog Nbr: 0681

142908	Lead Sust Ent
Subject: CRBU	Catalog Nbr: 0835

142909	Perinatal Epi
Subject: CRBU	Catalog Nbr: 0759

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142910	Nutrition Product Regulations: Labeling and Claims			
Subject:	Catalog Nbr:			
NUTC	0281			
2022 SPRG	Primary	Susan Mitmesser	Susan.Mitmesser@tufts.edu	
2022 SPRG	Primary	Cathy Weir	Cathy.Weir@tufts.edu	
<p>Understanding the regulatory environment is critical to the successful development, manufacturing, labeling, and delivery of nutrition-related products to the consumer. Knowing how to manage risk while navigating the regulatory path to market is essential. Students in this course will become familiar with: the nutrition-related regulations applicable to the production and marketing of foods and beverages, dietary supplements and ingredients, as well as medical foods and devices; how to represent scientific evidence accurately and appropriately when substantiating label claims and advertisements; and develop a working knowledge of potential legal ramifications by examining relevant case studies.</p>				

142911	Underlying Causes of Malnutrition			
Subject:	Catalog Nbr:			
NUTC	0204			
2022 SPRG	Primary	Heather Stobaugh	Heather.Stobaugh@tufts.edu	
<p>In this course, we will look at the different nutrition-sensitive interventions to address the underlying causes of malnutrition. Interventions affecting nutrition outcomes can be in multiple sectors, such as agriculture, early childhood development, education, water and sanitation, health systems, as well as social safety nets and poverty alleviation. At the end of the course, students will gain an understanding of the design and implementation, as well as opportunities and challenges of such interventions; be able to explain how nutrition-sensitive programs can integrate and promote nutrition as a goal of multiple sectors and contribute to achieving national development.</p>				

143036	Success & Challenges Health Behavior Change			
Subject:	Catalog Nbr:			
CRHA	SBS508			

143037	Appld Biomarkers in Cancer Epi			
Subject:	Catalog Nbr:			
CRHA	EPI246			

143038	Tumor Metabolism & Signaling			
Subject:	Catalog Nbr:			

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CRHA	GCD213
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143050	Introduction to Demographic Methods
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Subject:	Catalog Nbr:
CRHA	GHP220

143061	Data Visualization and Effective Communication
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Subject:	Catalog Nbr:
NUTR	0393

2022 SPRG	Primary	Elena Naumova	elena.naumova@tufts.edu
2022 SPRG	Primary	Corby Kummer	Corby.Kummer@tufts.edu

This course provides students with tools and techniques to analyze and critique current forms of data visualization in both public media and research literature; and to construct high quality graphical displays with a keen understanding of the ethical challenges and the role of communication. Using research data provided by the instructor, students will build a portfolio of graphical displays and descriptions intended for both scientific journals and popular media. Emphasis is on: a) developing a conceptual understanding of the statistical context that surrounds graphical displays; b) critically evaluating graphical displays from a broad range of disciplines; and c) building effective graphical displays for intended audiences.

143265	Current Controversies in Nutrition Science
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Subject:	Catalog Nbr:
NUTC	0285

2022 SUMR	Primary	Nicole Schultz	Nicole.Schultz@tufts.edu
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Virtually no discipline attracts more public attention or generates more controversies than nutrition. The reasons for this vary. Food and nutrition can be viewed through multiple lenses: the personal, familial, communal, cultural, political, historical, and scientific. This course explores the scientific underpinnings of several hot topics and controversies, which will be examined from the perspectives of scientists and consumers (of food and media), with an undercurrent fostering self-understanding of implicit biases. The class will engage in debates and discussions designed to illuminate different perspectives. Students will have the opportunity to research, evaluate, and present their findings on a nutrition-related topic that is of concern to them.

143279	PhD Continuation Summer
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Subject:	Catalog Nbr:
NUTR	0398

PhD Continuation Summer

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143291	Applied Optimization in Food and Nutrition Policy			
Subject: NUTR	Catalog Nbr: 0407			
<p>Optimization problems arise in fascinating ways throughout food and nutrition policy: in regression, the fundamental algorithms are based on least-squares and maximum likelihood optimization; in economics, demand theory centers on utility maximization subject to a budget constraint, and supply theory uses cost minimization subject to a production target; in nutrition policy, USDA's Thrifty Food Plan minimizes a squared distance function subject to both a budget constraint and nutrition constraints; and in logistics, maximizing profit while minimizing the delivery cost from distribution centers to grocery stores explains key developments in the food retail industry. This course teaches (or, for some students, re-teaches) selected topics in differential calculus and matrix algebra as preparation for constrained optimization using the Lagrangian method and computational approaches in Excel and R. The course is designed for Ph.D. students (commonly in their first year) and mathematically curious master's students (commonly in their second year), as preparation for further study of advanced quantitative research tools.</p>				

143298	Doctoral Seminar in Biochemical and Molecular Nutrition			
Subject: NUTR	Catalog Nbr: 0250			
2022 FALL	Primary	Stefania Lamon-Fava	stefania.lamon-fava@tufts.edu	
<p>This course is designed to lay the foundation for nutrition research through a mix of student-led topic discussions and student presentations of research data, and faculty-led workshops on research methodologies. Students will become acquainted with a variety of approaches to research design, helping them to develop their own research projects and to evaluate the products of their research. This course is required for all doctoral students in the Biochemical and Molecular Nutrition (BMN) program and Masters students admitted to the BMN doctoral program. BMN students will be required to take this course for two years. Students from other Friedman School programs and Masters-level students may be considered only with the instructor's consent. Meets third Tuesday of the month (September through December in the fall semester and January through May in the spring semester).</p>				

143331	Writing Well About Food and Nutrition			
Subject: NUTR	Catalog Nbr: 0322			
2022 SPRG	Primary	Corby Kummer	Corby.Kummer@tufts.edu	
<p>This course is an intensive workshop on finding your own voice and using it to write clearly and powerfully about food, food policy, and nutrition. Skills acquired in this course are intended to complement other skills that Friedman School students acquire such as research design and interpretation, scholarly citation, and data analysis. Students will write a series of short and longer articles designed to help them learn to structure research and information gathered from a variety of sources into concise, persuasive, engaging narratives with a clear sense of direction that requires craft and practice. A series of short assignments will give students a chance to practice writing a family dietary history, an informational article, solving cooking problems, and other forms. A final assignment will bring together the elements introduced in class in a long-form reported article. Priority enrollment for NICBC students. Enrollment limited to 20 students. Prerequisite: NUTR 0220 or</p>				

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complete a writing sample for exemption, and graduate standing or instructor consent. NUTR 0220 may not be taken concurrently with NUTR 0322.

143444	Health Properties of Food			
Subject: NUTC	Catalog Nbr: 0206			
<p>In a world of conflicting food messages, how do we know which foods are good for us? And what is the evidence for why you might want to incorporate foods like avocados, beans, and berries more often into the meals you prepare? Students in this course will explore the relationship between diet and health by examining the habitual eating patterns (eg: Mediterranean-style, vegetarian, etc.) that have been shown to prevent and/or treat chronic diet-related conditions, such as hypertension, heart disease, type 2 diabetes, and certain cancers. They will also learn about the nutritional components of the foods and beverages commonly present in these healthy eating patterns, and look at the science-based evidence that supports the health effects of individual foods and beverages. Prerequisite: Graduate standing or instructor consent.</p>				

143506	Food Law and Regulation			
Subject: NUTR	Catalog Nbr: 0284			
2022 SPRG	Primary	Nicole Negowetti		Nicole.Negowetti@tufts.edu
<p>This interdisciplinary course focuses on food law, an area where many important legal, environmental, economic, and social justice concepts intersect in our society. Students will engage in analysis of the following topics: national regulation of food (production, safety, labeling, and marketing); food and consumer rights; food technology and the law (biotechnology, genetic modification of crops and livestock); food production (including an overview of the farm bill, the National Organic Program, and alternative food systems); food, energy, and water; food, nutrition, and public health; and food justice, including issues of equity, food access, land and labor rights. The course will introduce students to legal research, analysis, and writing. It will challenge students to understand and analyze a complex regulatory area where problem solving often requires careful assessment of various branches and levels of government (local, state, and federal), administrative authorities, and potential causes of action (statutory and common law). The course also explores the policy issues, intra-governmental relationships, and political dynamics that shape the regulation of food. Enrollment limited to 20 students. Prerequisite: NUTR 0203: Fundamentals of Nutrition Policy & Programming: How Science & Practice Interact OR NUTR 0215: Fundamentals of U.S. Agriculture and graduate standing or instructor consent.</p>				

143507	Water Science and Systems Analysis			
Subject: NSWM	Catalog Nbr: 0200			
2021 FALL	Primary	Kirk Westphal		Kirk.Westphal@tufts.edu
2021 FALL	Primary	Annette Huber-Lee		Annette.Huber_Lee@tufts.edu
2021 FALL	Primary	Brian Joyce		Brian.Joyce@tufts.edu
<p>This course focuses on hydrology, water resources engineering, water quality analysis, and systems thinking</p>				

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aspects of water. Students gain a broad understanding of the scientific theories and principles related to processes governing water availability and quality and the practice of applying this theory, along with data and models, to address a range of problems of water resources engineering and management. The course is structured around model applications to case studies, which facilitates exploration of issues related to uncertainty, model complexity, and scale. Enrollment available to SWM-MS students only. Enrollment restricted to SWM-MS students only. Prerequisites: Prior course in calculus.

143550	Food Writing for Media			
	Subject:	Catalog Nbr:		
	NUTR	0283		
Check back soon for course description				

143551	Environmental Life Cycle Assessment			
	Subject:	Catalog Nbr:		
	NUTR	0331		
	2021 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu
	2022 SPRG	Primary	Christian Casolaro	Christian.Casolaro@tufts.edu
<p>Which protein source is more environmentally sustainable: chicken, tofu, or salmon? What processes in a food company's supply chain should be targeted to reduce energy use and costs? How would shifting to nationally recommended diets impact the environment? These are a few examples of the myriad questions that can be addressed with life cycle assessment (LCA). LCA is a tool in the field of industrial ecology that quantifies the resource use and emissions of a product or system along its entire life cycle, from raw material extraction to final disposal. A central objective of this method is informing evidence-based decision-making toward sustainability by policy makers, NGOs, companies, and individuals. This course covers the intellectual foundations of LCA and provides hands-on experience applying the tool, with a focus on topics, data sources, and methodological issues relevant to food and agriculture. Friedman students are strongly encouraged to take this course in their second year. Pre-requisites: NUTR 0233: Agricultural Science and Policy I and NUTR 0333: Agricultural Science and Policy II, or instructor consent.</p>				

143552	Creating Value Through Operations & Technology			
	Subject:	Catalog Nbr:		
	CRBU	OM726		

143553	Obesity Epidemiology			
	Subject:	Catalog Nbr:		
	CRHA	ID537		

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143554	Decision Theory
Subject: CRHA	Catalog Nbr: RDS284

143555	Corporate Sustainability Strategy
Subject: CRBU	Catalog Nbr: SI849

143556	Comp Immunology
Subject: CRBU	Catalog Nbr: MI713

143557	Social Epidemiology
Subject: CRBU	Catalog Nbr: EP775

143558	Energy Metabolism
Subject: CRBU	Catalog Nbr: NU757

143559	Human Neuropsychology
Subject: CRBU	Catalog Nbr: BN775

143560	Food Policy and Food Systems
Subject: CRBU	Catalog Nbr: ML720

143628	Water Leadership and Impact Management
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Subject:	Catalog Nbr:			
NSWM	0203			
2022 SPRG	Primary	Kevin Oye		Kevin.Oye@tufts.edu
2022 SPRG	Primary	Joshua Ellsworth		Joshua.Ellsworth@tufts.edu

To drive positive impact towards the sustainable management of water resources, effective leaders must both grasp technical aspects of water challenges and balance competing demands from multiple stakeholders with differing levels of power and influence. SWM professionals need to develop both the mindset and the skillset to analyze complex socio-political contexts, work with diverse actors to identify specific problems and opportunities, create practicable solutions, and to persuade, negotiate, and lead others to achieve objectives. This course focuses on developing, in an integrated manner, the creative thinking and planning skills to identify and innovate solutions to tough challenges. It covers systems and problem analysis, participatory project design, budget preparation, and effective teamwork.

143629	Water: Economics, Law, Negotiation and Policy			
Subject:	Catalog Nbr:			
NSWM	0205			
2022 SPRG	Primary	William Moomaw		william.moomaw@tufts.edu
2022 SPRG	Primary	Eric Kemp-Benedict		Eric.Kemp-Benedict@tufts.edu
2022 SPRG	Primary	Erum Sattar		Erum.Sattar@tufts.edu

The main focus of this course is water allocation, both within and between countries. Water is an intrinsically valuable resource that is essential for human life. It is renewable, but can be degraded, and at any moment is available in finite quantities. This means that allocation is a central question, and has been for millennia. Competing claims are negotiated in political arenas, and the resulting allocation rules can be codified in norms and traditions, or in formal law. The law might specify allocations explicitly or it might seek to protect property rights, with allocation determined by markets. Through case studies, the class will explore a number of alternative forms of water allocation from a critical and systems perspective. Students will complete homework assignments throughout the course and, in the reading period, write a final report, focused on a specific case, that draws on the class materials. Complementing the case studies will be classes on specific concepts in economics, law, and policy, including a two-week module introducing basic concepts from engineering economics. Through the engineering economics module, students will practice costing, accounting, cost-benefit, and multi-criteria analysis at an introductory level.

143630	Sustainable Water Management Practicum			
Subject:	Catalog Nbr:			
NSWM	0298			
2022 SUMR	Primary	Erum Sattar		Erum.Sattar@tufts.edu

Students continue to develop and practice skills learned in four core classes and track electives. Through six to eight weeks of professional experience in a field site off-campus, the students will focus on enhancing their research and management capacities in a water related project. Prior to the summer, the students leverage the SWM faculty network and approach external institutions to secure an opportunity and to develop their practicum goals. The practicum is designed to fit students individually, based upon their strengths, interests, and career goals. Upon completion of the field site portion, students return to the Medford campus to deliver

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a paper or product and to present their experiences to the larger community. This required summer practicum is supported by a stipend of up to \$3,000 intended to cover travel and living expenses for the duration of the practicum. Prerequisites: Successful completion of all SWM Core courses and Track courses. Enrollment restricted to SWM-MS students only.

143632	Humanitarian Leadership: The Political and Policy Challenges of Being in Charge		
Subject: NUTR	Catalog Nbr: 0329	2021 SPRG	Primary
		Gregory Gottlieb	Gregory.Gottlieb@tufts.edu
<p>The past several decades humanitarian assistance has undergone many changes, from mostly focusing on natural disasters where westerners rushed personnel and relief items to the site of the disaster, to now where the vast majority of funding and personnel is provided in complex emergencies brought about by conflict and staffed by a more broadly international staff. The end of the Cold War, 9/11, the wars in Iraq, Afghanistan, Yemen, and especially Syria have engendered complexities for humanitarians that seem to dwarf past responses. For those who are tasked with leading humanitarian efforts, the combination of complex program challenges, counter-humanitarian groups, politics, and national security policy considerations, complicates leading humanitarian responses. Under such complicated and difficult circumstances, effective and considered leadership is needed more than ever at all levels of engagement. Prerequisite: Graduate standing or instructor consent. This course is cross-listed with Fletcher (DHP D234). All class sessions will be recorded via Zoom.</p>			

143658	Case Studies in Global Mental Health Delivery		
Subject: NUTR	Catalog Nbr: GH208		

143678	Introduction to Epidemiology		
Subject: CRBU	Catalog Nbr: EP714		

143680	Obesity and Society		
Subject: CRBU	Catalog Nbr: SB800		

143721	Nutrition and Health		
Subject: NUTR	Catalog Nbr: 0251		

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This course will introduce student to how nutrition relates to human health. We will focus on how diet and nutrition contributes to physical and mental well-being as well how diet and nutrition contribute preventing or promoting disease. Topics will include heart disease, cancer, and common chronic diseases. No prerequisites.

143723	Obesity
Subject: NUTR	Catalog Nbr: 0252
Obesity is the greatest diet-related health problem of our time. The obesity epidemic has spawned innumerable fad diets and exercise regimens. This course will examine factors that lead to obesity, health consequences of obesity, and treatment options. This course is suitable for students with no nutrition background. No prerequisites.	

143801	Applied Bayesian Analysis
Subject: CRHA	Catalog Nbr: BST228

143809	Case Studies in Global Mental Health Delivery
Subject: CRHA	Catalog Nbr: GH208

143810	Decision Ana For Hlth/Med Prac
Subject: CRHA	Catalog Nbr: RDS280

143811	Intro Geno & Bio Hlth Resrch
Subject: CRHA	Catalog Nbr: BST280

143866	Introduction to Social and Biological Networks
Subject: CRHA	Catalog Nbr: BST267

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143901	Development of Sustainable Environmental Responsibility	
	Subject: CRBU	Catalog Nbr: GE522

143912	Nutritional Epidemiology	
	Subject: CRBU	Catalog Nbr: EP758

143913	Advanced Regression: Env Epi	
	Subject: CRHA	Catalog Nbr: ID271

143973	Applied Longitudinal Analysis	
	Subject: CRHA	Catalog Nbr: BST226

143974	Intro Quant Meths Montng Eval	
	Subject: CRHA	Catalog Nbr: BST216

143975	Nutrition and Global Health	
	Subject: CRHA	Catalog Nbr: ID217

143976	Data Science II	
	Subject: CRHA	Catalog Nbr: BST261

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144008	Translating Nutrition Evidence into Multimedia for the Public			
Subject:	Catalog Nbr:			
NUTR	0337			
2020 Fall	Primary	Edward Saltzman		edward.saltzman@tufts.edu
2022 FALL	Primary	Corby Kummer		Corby.Kummer@tufts.edu
<p>The course is designed to draw on the strengths of students from all Tufts Friedman departments, who seldom have the chance to test and benefit from each others' expertise and developing skills. Working in groups of three, students will identify an area of common interest, and through the semester structure a multi-media article incorporating text, infographics, audio and potentially video to produce an article publishable in the general media. Particular emphasis will be placed on clarity of writing and conception. Guest lectures will focus on social media, podcasting, researching, and video skills. Pre-requisite: Graduate level or instructor consent.</p>				

144010	Cardiopulmonary Pathophysiology			
Subject:	Catalog Nbr:			
CRBU	HS575			

144129	Food Lab			
Subject:	Catalog Nbr:			
NUTR	0343			
<p>Focusing on one food group, grains and bread, this course will bring together food system sustainability, nutrition science, and the culinary arts. We will use an interdisciplinary framework to explore the food system, including such topics as: historic and current food values, new models for wholesome breads, the terroir of flour, activism, non-commodity and commodity plant breeding and milling, and the power of cooking and eating together to impact social, cultural, and economic change. Roundtable discussions and Cook Together events will provide students with opportunities to collaborate on research, design and participate in projects, and develop professional relationships across disciplines and beyond Tufts University. Pre-requisites: Graduate standing or instructor consent</p>				

144218	Special Topics in Gastronomy			
Subject:	Catalog Nbr:			
CRBU	ML610			

144378	Branding			
Subject:	Catalog Nbr:			
CRBU	MK487			
Branding				

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144379	Branding	
	Subject: CRBU	Catalog Nbr: MK854
Branding		

144380	Infectious Disease Epi	
	Subject: CRBU	Catalog Nbr: EP755

144389	Lead Sustainable Enterprises	
	Subject: CRBU	Catalog Nbr: OB835

144400	Econometrics for Health Policy	
	Subject: CRHA	Catalog Nbr: GHP525

144401	Societal Response to Disasters	
	Subject: CRHA	Catalog Nbr: ID205

144460	Stat Methods Epi	
	Subject: CRBU	Catalog Nbr: BS852

144467	Applied Genetic Epidemiology and Biostatistics in Nutrition Research		
	Subject: NUTR	Catalog Nbr: 0375	
	2022 SPRG	Primary	Jiantao Ma
			Jiantao.Ma@tufts.edu
<p>This course is designed for graduate students who are interested in conducting or better interpreting epidemiological studies relating genetics to dietary intakes, disease, or health. There is an increasing awareness that various aspects of diet and genetics may both be important contributing factors in chronic</p>			

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disease. This course provides an overview of the statistical tools available to conduct and interpret genetic association analyses of complex disease, with a focus on nutrition. We also review the strengths and weaknesses of the available methods, and provide hands-on experience applying methods such as genome-wide association, haplotype, RNA-sequencing, and gene-diet interaction analyses. Students will become familiar with the Tufts Computing Cluster, Unix tools, R, and other specialized genetic software. Pre-requisites: NUTR 0204 or PH 0201: Principles of Epidemiology and NUTR 0206: Biostatistics 1 or PH 0205: Principles of Biostatistics, and NUTR 0309: Statistical Methods for Nutrition Research II and graduate standing or instructor consent.

144468	Corporate Social Responsibility in the Food Industry				
	Subject:	Catalog Nbr:			
	NUTR	0278			
	2021 SPRG	Primary	Nicole Blackstone	Nicole.Blackstone@tufts.edu	
	2021 SPRG	Primary	Sean Cash	Sean.Cash@tufts.edu	
<p>The role of the corporation in achieving societal goals is controversial and has evolved over time. The food industry in particular has the potential to impact human health, food access, ecological sustainability, working conditions, and community well-being. This course will provide students with an overview of prevailing theories of the social responsibilities of corporations; how CSR activities may benefit food businesses; how businesses can conduct, monitor, and measure the impacts of CSR practices; how consumers respond to these efforts; and emerging topics relevant to CSR in the food industry. We will draw upon academic research, case studies, and insights from current professionals to illustrate these concepts. Pre-requisite: Graduate standing or instructor consent. All class sessions will be recorded via Zoom.</p>					

144503	Global Noncommunicable Diseases				
	Subject:	Catalog Nbr:			
	CRHA	GHP216			

144583	Human Rights Dilemma in Child Protection				
	Subject:	Catalog Nbr:			
	CRHA	GHP553			

144584	International Perspectives: Justice for Children				
	Subject:	Catalog Nbr:			
	CRHA	GHP511			

144607	Molecular Basis of Organ System Diseases				
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Subject:	Catalog Nbr:
CRBU	MM707

144650	Grant Writing for Funding of Research and Health Care Projects
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Subject:	Catalog Nbr:
CRHA	GHP263

144690	Intermed Statistical Computing & Applied Regression Analysis
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Subject:	Catalog Nbr:
CRBU	BS805

144691	Principles of Injury Control
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Subject:	Catalog Nbr:
CRHA	ID240

144692	Introduction to Medical Pharmacology
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Subject:	Catalog Nbr:
CRBU	PM730

144779	Nutrition and the Gut Microbiome
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Subject:	Catalog Nbr:
NUTR	0373

144780	Biology of Aging
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Subject:	Catalog Nbr:
NUTR	0247

2021 SPRG	Primary	Allen Taylor	allen.taylor@tufts.edu
2021 SPRG	Primary	Mitch McVey	Mitch.McVey@tufts.edu

This course is an in-depth examination of current topics in aging research, with a focus on human aging. Topics to be discussed include theories of aging; physiological, cellular, and epigenetic changes that occur with aging; biochemical and energetic processes that affect healthspan and lifespan; and interventions that may affect the aging process. The themes for this course vary each time it is offered. This year there will be an

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emphasis on protein quality control pathways and their roles in homeostasis, aging, and age-related diseases, along with drugs to exploit those capacities. Students will help direct the course by presenting and critiquing papers selected from a curated list of current aging research literature. Prerequisites: Graduate Biochemistry (BCHM 0223) or instructor consent. It is also recommended that students have taken undergraduate-level classes in Cellular or Molecular Biology and Genetics.

144808	Food & the Global Environment
Subject: CRHA	Catalog Nbr: EH212

144893	Organic Farming and Food Systems Practicum I
Subject: NUTR	Catalog Nbr: 0105
<p>Workshop participants will learn basic horticulture principles and practices associated with organic vegetable production emphasizing soil health and regenerative agriculture systems. This workshop focuses on soil management, cultivation and tillage practices (including no-till), plant propagation, and crop planning. The value of soil organic matter and microbes will be discussed within the contexts of industrial and regenerative agriculture, exposing participants to broader issues in the food system. Taught by experienced staff of New Entry Sustainable Farming Project, participants will either meet online or at Moraine Farm in Beverly. Online course content and mini lectures will be combined with at-home experiential learning opportunities focused on the importance of soil health and small and medium size market farms' contributions to creating more sustainable and resilient food systems. Please visit https://nesfp.org/farmer-training for more information.</p>	

144894	Organic Farming and Food Systems Practicum II
Subject: NUTR	Catalog Nbr: 0106
<p>Workshop participants will learn basic horticulture principles and practices associated with organic vegetable production while exploring the management of pests and disease, nutrients, and weeds in an organic farming operation. Additional themes of this workshop explore the use of equipment and tools across different scales of farming operations and the different labor demands of farming operations in conventional and organic production. Taught by experienced staff of New Entry Sustainable Farming Project, participants will either meet online or at Moraine Farm in Beverly. Online course content and mini lectures will provide additional context for understanding different types of farm management and their respective social, economic, and environmental implications. Please visit https://nesfp.org/farmer-training for more information.</p>	

144895	Organic Farming and Food Systems Practicum III
Subject: NUTR	Catalog Nbr: 0107
<p>Workshop participants will learn basic horticulture principles and practices associated with organic vegetable</p>	

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production while exploring how to harvest, wash, and pack vegetables for a variety of local market outlets. In this peak part of the season, we will be working with the New Entry Food Hub to explore aggregation and distribution of local produce, in addition to working in the field to harvest and maintain crops. Additional themes will focus on food safety and post-harvest handling. Taught by experienced staff of New Entry Sustainable Farming Project, participants will either meet online or at Moraine Farm in Beverly. Online course content and mini lectures will explore the economics of small-scale farming focused on direct-to-consumer market outlets. Please visit <https://nesfp.org/farmer-training> for more information.

144950	Marketing Management
Subject: CRBU	Catalog Nbr: MK724

144984	Marketing Management
Subject: CRBU	Catalog Nbr: MK724

145019	Basic Neurosciences Survey
Subject: CRBU	Catalog Nbr: BN779

145058	Local Government Law
Subject: CRBR	Catalog Nbr: 0444
Local Government Law	

145059	Systems Neurobiology
Subject: CRBU	Catalog Nbr: AN810

145062	Topics Environmental Sociology
Subject: CRBC	Catalog Nbr: 0776

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145063	Local Government Law			
Subject:	Catalog Nbr:			
CRBC	0444			

145064	Advanced Introductory Biochemistry			
Subject:	Catalog Nbr:			
CRBR	0100			

145079	Doctoral Seminar in Nutrition Epidemiology and Data Science			
Subject:	Catalog Nbr:			
NUTR	0249			
2022 FALL	Primary	Elena Naumova		elena.naumova@tufts.edu
<p>This is a satisfactory/unsatisfactory graded course designed to lay the foundation for nutrition research with data-intensive methodology through a mix of student-led topic discussions, student presentations of research data and analysis, and faculty-led workshops on research methodologies. Students will become acquainted with a variety of approaches to data analytics, research design, helping them to develop their own research projects and evaluate the products of their research. This course is required for all doctoral students in the Nutrition Epidemiology and Data Science (NEDS) program and Masters students admitted to the NEDS doctoral program. NEDS students will be required to take this course for 2 years. Students from other Friedman School programs and Masters-level students may be considered with the instructor's consent. Meets first and third Tuesday of the month (September through December in the fall semester and January through May in the spring semester).</p>				

145089	Famine, Livelihoods & Resilience-Food Security Analysis & Response in Crisis & Crisis-Prone Contexts			
Subject:	Catalog Nbr:			
NUTR	0339			
2022 SPRG	Primary	Daniel Maxwell		Daniel.Maxwell@tufts.edu
2022 SPRG	Primary	Merry Fitzpatrick		Merry.Fitzpatrick@tufts.edu
<p>After a decade of absence, famine returned with a vengeance in Somalia in 2011, and in 2017-18, there were four countries at imminent risk of famine. While this return highlights the extreme risks of famine, particularly in conflict-affected areas, it also raises again the limited progress made in addressing the underlying causes of severe food insecurity. "Resilience" has been the good word of the decade, but limited progress has been made in building greater resilience among the poorest or most marginalized populations, and the livelihoods of these populations are under more stress now than ever. This class will draw primarily on the international experience of the co-leaders but will attempt to draw on domestic US cases as well. This seminar class will consider new (and some not so new) approaches to this kind of the understanding and analysis of, and response to, food insecurity, hunger and malnutrition among crisis-prone populations. This class is intended</p>				

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as a reading seminar—not a lecture-based class or a “how to” workshop. Everyone will read the same basic materials. Class formats will be primarily discussion-based, requiring students to actively participate in class discussions, debates and activities. The students will each take on one or two of the books on particular topics to read them more thoroughly, bringing their lessons into these discussions. Case studies will be used as a discussion/learning mechanism, and attempts would be made to draw on Tufts significant faculty resources in these areas. We will occasionally ask external experts to join us and offer insights into specific areas of study. The 3.0 semester hour units seminar is a core elective requirement option for MAHA students and a required course option in the FANPP Humanitarian Assistance specialization. As an elective the seminar can be taken for 1.5 semester hour units for a more limited set of assignments: doing the reading, participating in (and occasionally leading) the discussion exploring the research literature, and doing two book reports (each includes an oral presentation and a written summary) or it can be taken for a full 3.0 semester hour units with only one book report, and a three-part semester-long project involving the selection of a key problem or area of interest related to the class, the development of an analysis of that problem (to be presented orally to the rest of the class), writing a policy brief to address the policy elements of a the problem, and a brief paper outlining practically how to address the problem on the ground. Students that would like to be enrolled in the course with 1.5 semester hour units should first enroll in the course as 3 semester hour units and email Friedman's Registrar to request an adjustment in enrollment to 1.5 semester hour units. Prerequisite: Graduate student or instructor consent. This course is cross-listed with Fletcher (DHP D242).

145143	U.S Health Policy
Subject: CRHA	Catalog Nbr: HPM210

145251	Nutrition and Racial Inequities Journal Club
Subject: NUTR	Catalog Nbr: 0277
2022 SPRG	Primary Travis Moore Travis.Moore@tufts.edu
<p>This course is designed to explore literature and generate discussion on topics related to racism and its intersections with nutrition that create inequities in diet and diet-related disease outcomes. We will explore both the impact of oppression as well as resistance strategies. It is expected that these topics will be discussed from a range of disciplinary perspectives, and the course is appropriate for students in any Friedman program. Students will be expected to select and lead a discussion on a relevant reading at least once during the semester. Pre-requisite: Graduate-level or instructor consent.</p>	

145280	Precision Nutrition
Subject: NUTR	Catalog Nbr: 0248
2022 SPRG	Primary Jiantao Ma Jiantao.Ma@tufts.edu
<p>This course is designed for graduate students who are interested in understanding, interpreting, and designing studies related to precision nutrition. Precision nutrition includes three levels: (1) dietary recommendations based on guidelines for population subgroups by age, gender, and other social determinants, (2) individualized</p>	

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nutrition recommendations issued from deep and refined phenotyping, and (3) nutrition recommendations based on an individual's genetic background. The profound differences among individuals in disease risk and biological response necessitates adopting multidimensional and dynamic dietary recommendations to achieve optimal effects. We will review the current evidence, uncertainties and controversies, and future directions in precision nutrition. Aspects relating to both scientific research in this area as well as implementation, including healthcare and business models of precision nutrition, will be discussed. Prerequisite: NUTR 0202: Principles of Nutrition Science or equivalent and graduate-level or instructor permission.

145309	Big Data Analytics
Subject: CRBU	Catalog Nbr: ME777

145314	Epidemiology of HIV, Part I: Etiology, Natural History & Transmission
Subject: CRHA	Catalog Nbr: EPI255

145315	Early Childhood Development in Global Contexts
Subject: CRHA	Catalog Nbr: GHP209

145316	Microbial Communities and the Human Microbiome
Subject: CRHA	Catalog Nbr: ID0209

145322	Applied Survival Analysis
Subject: CRHA	Catalog Nbr: BST223

145326	Environmentally Sustainable Supply Chain
Subject: CRBU	Catalog Nbr: OM851

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145327	Human Neuropsychology II		
Subject:	CRBU	Catalog Nbr:	BN776

145369	An Introduction to Planetary Health		
Subject:	CRHA	Catalog Nbr:	ID220

145394	Computing Environments for Bio		
Subject:	CRHA	Catalog Nbr:	BST272

145462	Climate Change: Risk and Adaptation for Food Systems and Beyond		
Subject:	NUTR	Catalog Nbr:	0256
2022 FALL	Primary	Erin Coughlan	Erin.Coughlan@tufts.edu
<p>Climate change is one of the most pressing problems in the world today. This course will focus on the projected impacts of climate change around the world and related adaptations, with particular attention to humanitarian impacts and food systems. Students will cover climate risk assessment, risk perception, risk communication, and climate risk management/adaptation. The course will cover major climate impacts by sector, as well as their interactions and humanitarian implications. Each week of class will have two components: a lecture component and a lab component. The lecture will consist of instructor presentation of content as well as student reflection and discussion. The lab will consist of an exercise or simulation of technologies and methods related to climate impact assessment and management. Students will experiment with different methodologies to assess climate risk and identify impact modeling methodologies that are most appropriate for specific applications. Students will learn why people perceive risk differently and experiment with innovative methods to communicate risk. In the risk management section, students will critique alternative risk management strategies and identify equity and justice implications. As a final project, students will develop a proposal for the Green Climate Fund, which is the largest global fund to address climate change. Pre-requisite: Graduate standing or instructor consent.</p>			

145528	Advanced Clinical Nutrition Practice in Kidney Disease		
Subject:	NUTR	Catalog Nbr:	0374
2022 FALL	Primary	Haewook Han	Haewook.Han@tufts.edu
The important purpose for proposing this course is to understand complications of kidney disease and plan			

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various nutritional managements for the different stages of chronic kidney disease (CKD) and various types of other kidney disease. The Medical Nutrition Therapy (MNT) course provides basic nutritional management of CKD and end stage of kidney disease (ESKD). However, CKD is very complicated and the most recent trend of medical and nutritional managements of CKD have been changing from renal replacement therapy for ESKD to prevention of progression of CKD. The National Kidney Foundation (NKF) encourages earlier intervention of CKD since 2019 to slow progression of CKD which is also cost effective compared to ESKD management. Tufts MS/DI program provide more ESKD rotations than other programs in the U.S.; however our MS/DI students should get more clinical courses to be in good standing as entry level dietitians. This course will cover updated knowledge of etiology of CKD which include diabetes, the major causes of CKD, hypertension, other kidney injury, medications, pediatric nutrition management, effects of current diet on CKD and kidney stones which many registered dietitian nutritionists (RDN) do not have enough knowledge for appropriate nutrition managements. Prerequisites: NUTR 0315: Applied Nutritional Biochemistry or equivalent and NUTR 0316: Advanced Medical Nutrition Therapy or equivalent, and graduate standing or instructor consent.

145529	Political Agroecology			
Subject:	Catalog Nbr:			
NUTR	0332			
2022 FALL	Primary	Kevin Cody		Kevin.Cody@tufts.edu
<p>This course will examine the political and movement dimensions of agroecology as they relate to sustainable food systems transformation. With an emphasis on theory and practice, students will evaluate agrarian social movements advocating for food sovereignty, exploring issues related to governance, power, and collective action across multiple scales. Drawing from international and regional perspectives on agroecology, applied dimensions of the course will focus on participatory-action research and critical pedagogies that advance food systems transformation. Cross-listed with ENV 0196. Prerequisite: Graduate standing or instructor consent.</p>				

145532	The Food Industry's Role in Food System Sustainability			
Subject:	Catalog Nbr:			
NUTR	0344			
2022 FALL	Primary	Robert Guillemin		Robert.Guillemin@tufts.edu
<p>Food businesses (the companies that process, manufacture, distribute, serve, and sell food) transform the very nature of what we eat and establish the economic, social and environmental terms that shape much of the food system. This course explores the challenges and opportunities to feed a growing population in a manner that is reliable, equitable, healthy, and sustainable. Students will learn about industry-led initiatives that attempt to balance the drive for profits with social and environmental goals. By viewing sustainability from a food business perspective, the course exposes students to the terms, concepts, and strategies employed by business leaders who seek to promote sustainability throughout their supply chain and for all of their stakeholders. Prerequisite: Graduate standing or instructor consent.</p>				

145555	Food Retail and Supply Chain Management			
Subject:	Catalog Nbr:			
NUTR	0345			
2021 FALL	Primary	Richard Volpe		Richard.Volpe@tufts.edu

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This course is intended to provide an overview of the structure of the post-farm food supply chain. This course will promote an understanding of the many factors that influence behavior of food wholesalers and retailers. The course covers the economic and decision-making processes related to the food retail, wholesaling, manufacturing, and logistics industry sectors. The course is intended to promote critical thinking on the economic impacts and policy implications of the food supply chain and the behavior of firms operating within it. Case studies, federal and state datasets, and legislation will be featured to provide real-world examples. This course will complement other Friedman School course offerings for students interested in food policy, food access, food security, food prices, food choices, food marketing and food labeling. Economic concepts will be introduced throughout the course but prior coursework in economics is not necessary. Prerequisites: At least one semester of undergraduate or graduate statistics or related, such as quantitative analysis, or by instructor permission. No prior courses or experience in economics is required. Graduate standing or instructor consent.

145556	English for International Students	
	Subject:	Catalog Nbr:
	NUTR	0100

145567	Food Sci, Tech, and Sustainability	
	Subject:	Catalog Nbr:
	CRHA	NUT209

145568	Introduction to Programming	
	Subject:	Catalog Nbr:
	CRHA	BST273

145798	History of Food	
	Subject:	Catalog Nbr:
	CRBU	ML622

145802	Epi Methods in Health Services Research Epidemiology	
	Subject:	Catalog Nbr:
	CRHA	EPI235

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